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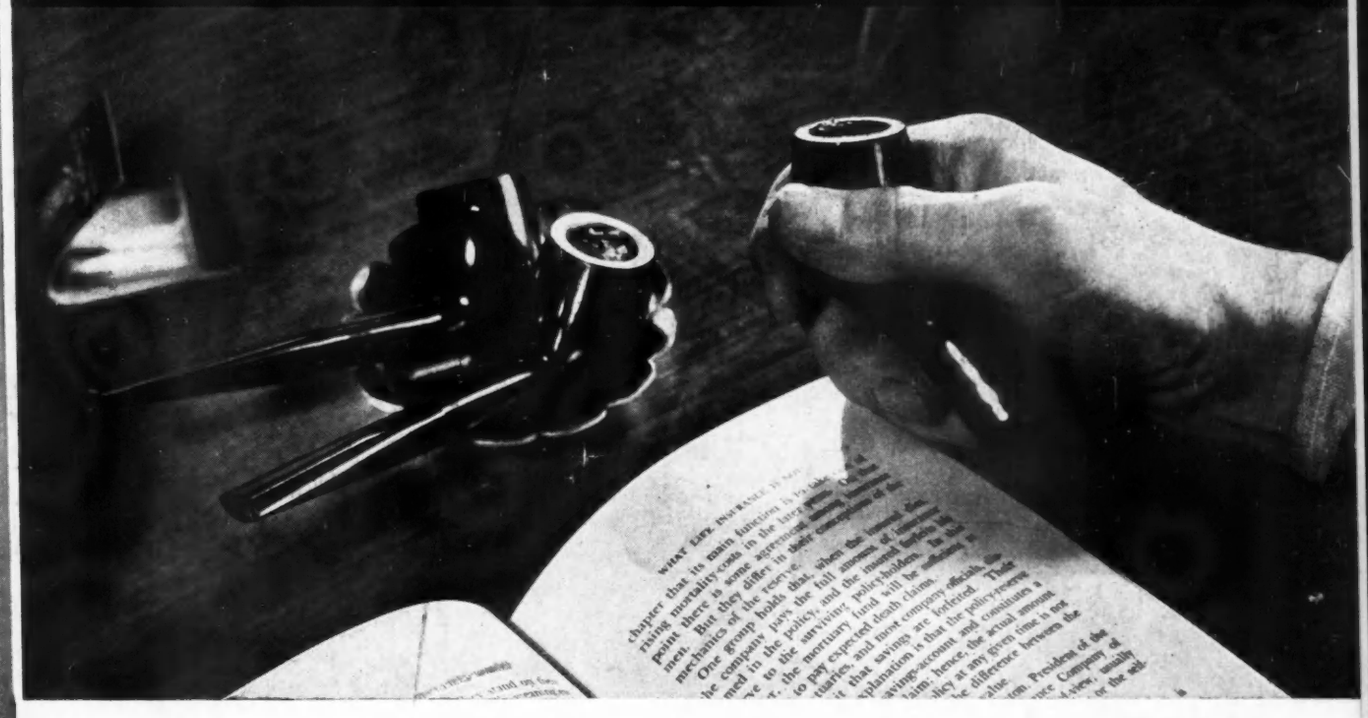
OCT 10 1938

AUTOMOTIVE INDUSTRIES

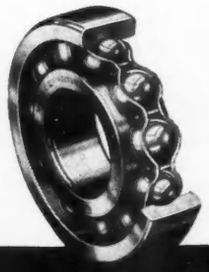
LAND — AIR — WATER

OCTOBER 8, 1938

ONE PIPE GIVES THE SWEETEST SMOKE



. . . for the quality of its wood is Best



Bearings, too, may look alike—but facts go below the surface. Take steel. New Departure sought steel clean enough and tough enough for the better ball bearings it was determined to make. There was no such steel! So New Departure developed its own specifications. Each ounce is made under its direct supervision. Then New Departure *forges* its steel to produce the world's toughest, wear-resistant bearings.

New Departures stand up on jobs that try the metal's very soul. Proof that New Departure should be first choice for your job is yours for the asking. For evidence of New Departure's better value, send for booklet B-20.

2673

NEW DEPARTURE Ball Bearings

New Departure · Division General Motors Corporation · Bristol, Connecticut

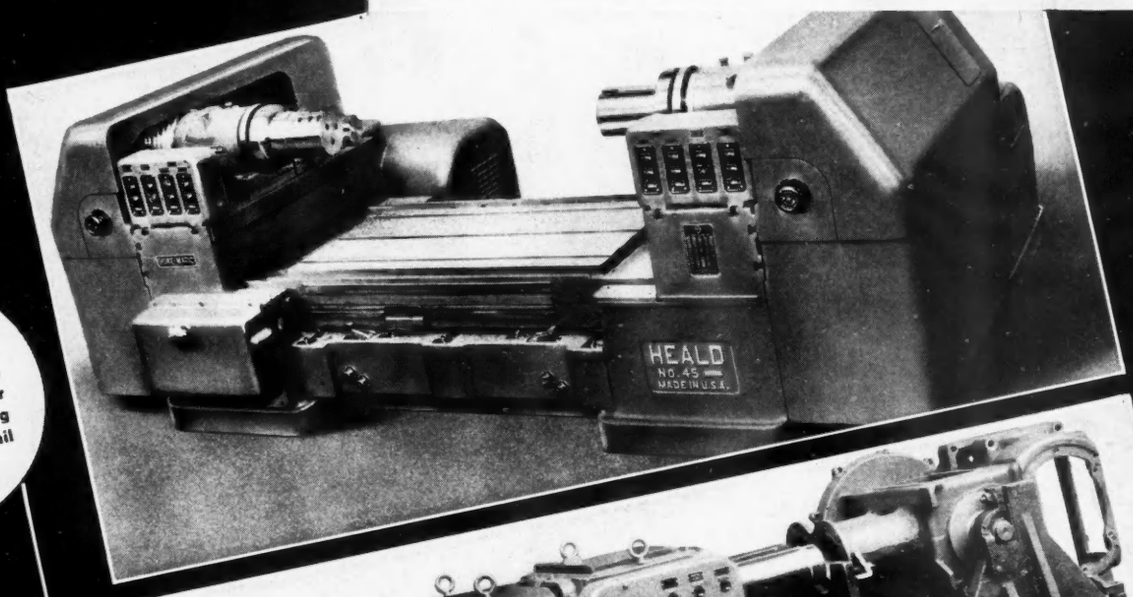
FOR A
MAN SIZE JOB:
The HEALD NO. 45 Bore-Matic
In EITHER DOUBLE *or* SINGLE END TYPES

cast steel screw achine 4 spindle arrier weighing 000 lbs., holes 8" ia., tolerances 0003" that was precision bored on the double end No. 45 Bore-Matic shown below.

Large, awkward shaped work can be precision finished just as successfully as small and medium size parts when handled on the Heald No. 45 Bore-Matic.

This No. 45 is a massive, powerful horizontal type machine and designed for precision boring large heavy work such as CYLINDER BLOCKS, LARGE CONNECTING RODS, LARGE PUMP AND COMPRESSOR BODIES, MACHINE TOOL WORKHEADS, TAIL STOCKS, SCREW MACHINE SPINDLE CARRIERS, etc. Heavy awkward work of this nature can be handled with the greatest possible convenience, since this machine is built low to the floor with the table at conveyor level.

The No. 45 Bore-Matic can be furnished either Single End for boring from one end or double end for boring from both ends, depending on the requirements of the customer. The machine has capacity to bore holes as large as 9" diameter, while the table provides ample space for holding large fixtures. Additional information on the No. 45 will be gladly sent on request.

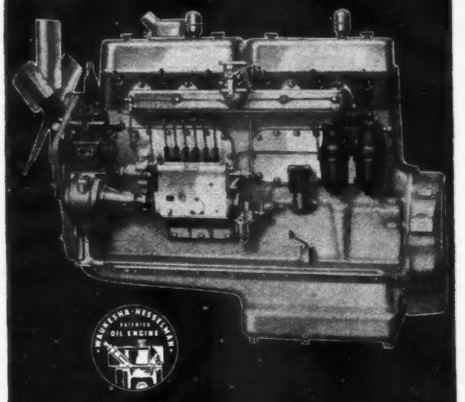


This Double End No. 45 Bore-Matic was furnished to a lathe manufacturer for precision boring head stocks and tail stocks.

A Single End No. 45 Bore-Matic used for boring two 7" diameter cylinder bores at the same time in a large cast iron compressor block.

THE HEALD MACHINE CO., Worcester, M

Then along came an INVENTOR



WAUKESHA HESSELMAN ENGINES

FOR THE GREATEST OVER-ALL ECONOMY

"How would you like to throw out all the spark plugs and ignition parts on your engine? I can show you how ... all you need to do is raise the compression pressure from 125 pounds on that engine to 500 or 600 pounds, and the gasoline will fire itself!"

Would you say, "You've got something there!" Not on your life! You'd refuse to swap what you *knew* was reliable, simple, and satisfactory—for a lot of high pressure troubles you knew nothing about. And you'd be right.

The hundreds of millions of passenger car miles back of electric ignition's development—its proved effectiveness—its very unobtrusiveness—convince you that its elimination would be no great improvement. Certainly not worth the trade proposed.

Precisely-timed electric ignition ... instead of high pressures ... has made the Waukesha-Hesselman Oil Engine famous the world over for its *easier starting, snappier acceleration, lower weight and lower up-keep.*

Today's rugged spark plugs are built for severe duty! In a Hesselman Engine, spark plugs have been run *at full load* 12 hours a day for ten months without missing.

In addition, the Waukesha-Hesselman burns a wider range of low-cost, easy-to-get diesel fuels, giving you the *greatest over-all economy.* Write for Bulletin 1000.

THIS IS No. 10 OF A SERIES ON THE WAUKESHA-HESSELMAN OIL ENGINES

WAUKESHA MOTOR COMPANY, WAUKESHA, WISCONSIN

NEW YORK • TULSA • LOS ANGELES

Commercial Tolerances

ALWAYS WERE A

GAMBLE

in Cold Rolled Strip Steel

Material cost will vary as much as 10% when you buy strip steel on a basis of commercial gauge tolerances. For example, steel .010" thick is allowed .001" plus or minus, which becomes an addition or reduction of 10% in length . . . that percentage more or fewer finished parts. Many buyers have been paying extra to get closer accuracy to gauge.

Today, that is not necessary. Cold Rolled Precision Strip Steel produced regularly on our 4-high single stand reversing mills is held to exceptionally close limits over the complete width and length of the strip. The trade refers to this as "C.M.P. Accuracy."

SPECIFY "C.M.P. ACCURACY"

Specify any analysis and temper you require—in carbon or stainless steels—specify gauges as light as .001" if you can use them—specify the largest coils you can handle—but leave the matter of gauge tolerance to us by simply specifying "C.M.P. Accuracy." You will find an appreciable increase in output per hundred pounds of metal. These advantages are available to you at no extra cost.

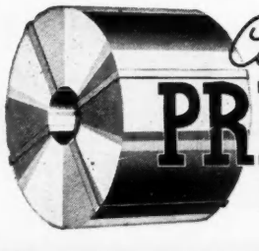
Write for Samples and Details

We will gladly send you samples of Precision Strip Steel as light as .001", explain their advantages fully and describe how our continuous annealing method guarantees uniformity.

The COLD METAL PROCESS CO.

2133 Wilson Avenue

YOUNGSTOWN, OHIO



Cold Rolled

PRECISION

STRIP STEEL

AUTOMOTIVE INDUSTRIES
The AUTOMOBILE

Reg. U. S. Pat. Off.
Published Weekly

Volume 79 Number 15

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AUTOMOTIVE INDUSTRIES

Vol. 79, No. 15
October 8, 1938

WILLIAM J. DAVIDSON

. . . nominated as president of the Society of Automotive Engineers for 1939. Mr. Davidson, general sales manager, Diesel engine division, General Motors Corp., has been with General Motors almost continuously since serving in the Motor Transport Corps during the World War. Returning from the war he was made chief engineer of the Canadian products division of GM at Walkersville, subsequently going to Oshowa as technical director of General Motors Corp. of Canada, Ltd.

In 1923 he was promoted to the staff of Alfred P. Sloan, then president of GM, and made executive secretary of the general technical committee. In 1926 Mr. Davidson was also made executive secretary of the newly formed new devices committee of GM. In 1930 he was made business director of General Motors' research laboratories.

In recent years he has been technical director under R. H. Grant and General sales manager of the Winton Engine Corp.

SAE Council Nominees for 1939

The following have been nominated as officers and members of the Society of Automotive Engineers' council for 1939:

President: W. J. Davidson, general sales manager, Diesel engine division, General Motors Sales Corp.

Treasurer: David Beecroft, Bendix Aviation Corp.

(Turn to page 431, please)

Production

Increase in Output Attributed to Schedule Adjustments

Continuing its conservative but steady upward climb, car and truck production for the week ending Oct. 8 should top the 26,000 mark, according to a preliminary survey of factory schedules. This compares with a revised estimate of 23,500 units for the previous week.

The indicated increase can be attributed almost entirely to upward adjustments in schedules of manufacturers who have been at work on final assembly of 1939 models for several weeks. A number of important producers, including Ford, have not yet started final assemblies in any volume, although Ford was expected to get a limited number through during the current week.

Executives of factories which have already shown their dealers their new cars have been busy on the road with their field organizations and reports filtering back to Detroit indicate an enthusiastic reception of the new models wherever seen. Most current production continues to be strictly for stocking of dealers, al-

(Turn to page 431, please)

AUTOMOTIVE INDUSTRIES

Summary of Automotive Production Activity
(Week Ending Oct. 8)

BUSES Little change since last week. Factory sales organizations reported preparing fleet specifications to intrigue operators serving New York and San Francisco areas in view of increased travelling expected during the two World Fairs.

TRUCKS Apparent settlement for time being of European situation has had a stimulating effect on sales for several producers. One large producer reports that there is a decided trend on the part of fleets to buy—that business is on par with last year—and that definite plans have been made to step up production on all models. Sales trend in last two months expected to yield profit for second half of 1938 for another plant which has not reported a profit since first half of 1937. Another manufacturer states new models will be introduced at the New York show, including a new cab-over-engine model. A new plant is expected to be announced soon by a producer adding Diesel trucks to its line.

TRACTORS Production is expected to be resumed at a rate of about 25 units daily by a manufacturer recently on the inactive list. While some producers continue to report "lull" in activity, more this week report pick up. Reduction of large inventories at one plant has necessitated a considerable increase in production rate. Another large manufacturer reports production will be concentrated in the winter months when employes' needs are greatest. Another announces output curtailed and prices reduced to clean up present inventories. Easing of European situation reported to have a slight stimulating effect.

AUTOMOBILES Production continues upward with output of 26,000 estimated for this week despite the fact that a number of producers have not started final assemblies in any volume. New models displayed to date have received encouraging public reception although advance orders, with the exception of one make, have not been outstanding.

A new chart on which can be based predictions of the future course of automobile production appears on p. 430 of this issue.

MARINE ENGINES Little change from last week. Export business, particularly on larger Diesels, ahead of domestic sales. Here, too, waning European war fever has been reflected in slight increases.

AIRCRAFT ENGINES Some releases for Canadian branches of U. S. Aircraft have been reported. Postponement of European crisis expected to permit heavy output across the border. Feeling seems to be that England will want American-designed, Canadian-built planes to ward off further threats to her security.

This summary is based on confidential information of current actual production rates from leading producers in each field covered. Staff members in Detroit, Chicago, New York and Philadelphia collect the basic information, in all cases from official factory sources.

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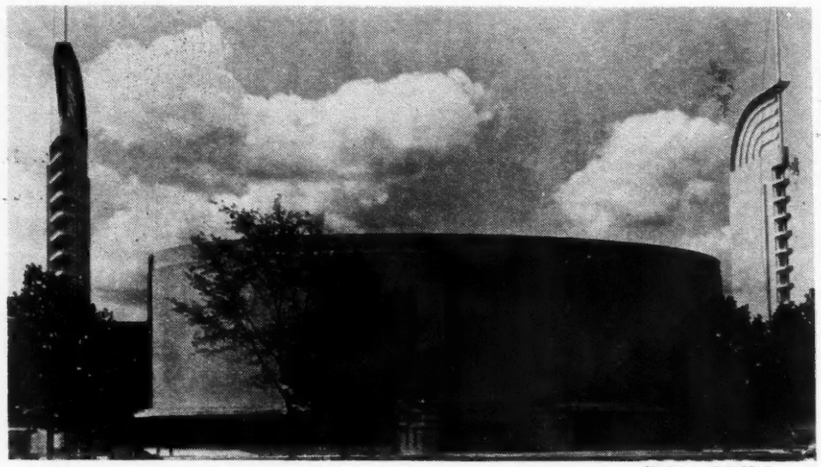


Underwood & Underwood

TRANSPORTATION One of the many structures now being erected at the World's Fair grounds near New York City is the Motor Transportation Building. It will house a variety of automotive exhibits.

Board Advises Against Production of Automobiles in Australia

The Australian Minister for Trade and Customs is reported to have announced in the Australian Parliament on Sept. 27 that the Australian Tariff Board has advised the Government against the encouragement of the manufacture of complete motor vehicles in Australia but has suggested a step-by-step development of the industry, according to a cablegram received in the Department of Commerce from the American Consulate General at Sydney.

The Minister stated that the existing quota restrictions applying on assembled and unassembled motor vehicle chassis imported from the United States and Canada would be continued.

Tabled in Parliament simultaneously with the announcement of the Minister the report of the Tariff Board advised that the encouragement of the manufacture of complete motor vehicles in Australia would concentrate manufacture in one factory, disrupt existing local industry, and necessitate the payment of a high bounty.

The cable said that instead of such a procedure, the Tariff Board recommended a progressive development of the industry, and as the initial step in this program, the Commonwealth Government has decided to pay a bounty of 10 shillings each for the next two years on locally made radiators.

The Minister for Trade and Customs is reported to have stated also that the Government would adhere to the policy of encouraging the establishment of an industry for the manufacture of engines and chassis in Australia, and has invited prospective manufacturers to submit proposals, with details of the assistance that may be required, not later than March 31, 1939.

The Tariff Board report on the question of the advisability of manufacturing complete motor vehicles in Australia has been in preparation for almost two and a half years. The Tariff Board submitted a report to the Minister for Trade and Customs less than a year ago, but was requested to make further studies. The report just tabled in Parliament represents the complete report of the board's investigations, according to the report.

Appendices to Labor Report

English National Federation Smooths Workers' Bargaining

Credited with having negotiated national agreements with 41 unions, members of the Engineering and Allied Employers National Federation in Great Britain, comprising manufacturers of automobiles, aircraft, machine tools and electrical products, have contributed to making the English system of collective bargaining work smoothly over "a long period of time."

This was indicated in appendices to the report made by President Roosevelt's nine-member commission which studied labor-relations abroad in both Great Britain and Sweden. The supplemental report pointed out that the Federation is composed of over 2000 firms employing about 1,000,000 workers and, despite the diversity of its membership, it is a closely knit and centrally directed organization equipped for "combat as well as peace."

In a detailed analysis of the British system of collective bargaining broken down by industrial groups, the commission reported that the employer association of which automobile, aircraft and machine tool manufacturers are members, is designed to secure mutual support in dealing with organized labor's demands and provides a system of indemnity payments to members afflicted with strikes or lockouts and taken from a fund contributed to by the members. The organization's constitution empowers it to lay down rules to be followed by members in the event of a strike or lockout affecting a member-plant and if a majority of the members so vote, an industry-wide lockout can be declared with the threat of expulsion from the organization used to obtain compliance.

Before this is done, however, the conventional British collective bargaining machinery, described in the commission's report made public several weeks ago, is put into motion. In the group of industries whose manufacturers are members of the engineering federation, wages are fixed regionally but general increases or decreases are usually determined nationally in an effort to avoid changes affecting only a particular part of the industry.

All national wage adjustments, the report continues, have been made by flat additions to, or subtractions from basic rates but there also is a cost of living bonus based on cost of living indices compiled by the Labor Ministry. While basic time rates are arrived at through agreements between the unions and the local associations affiliated with the national federation, the various regional rates are historical and have remained unchanged for a great many years.

. . . slants

SAVING *of* $146,000 *on automobile spare parts has been effected by the City of Montreal in Canada during the past* 15 *months by operation of a city "second-hand shop." About* 15 *months ago the city garage superintendent was ordered not to discharge men for whom there was no immediate work, but to put them to work pulling to pieces old, decommissioned vehicles. Parts obtained from dismantling the discarded cars were sorted and those unfit for further use sold for scrap metal; useful parts were classified and stored. For bookkeeping purposes the second-hand shop was placed on an indepen-*

HANDSHAKE

President Roosevelt congratulates Count Theo Rossi, of Italy, after the latter defeated the pick of American speedboat drivers to win the annual President's Cup Regatta on the Potomac. Rossi clipped the record to average 69.675 m.p.h. for the 15 mile run. Next to Rossi in the white yachting cap is Gordon Leech of the race committee, while at extreme right is James Councilor, judge of the race.

International News Photo

dent footing, charged with the wages of the men and the rent of its location and credited with half the new value of all parts that the city workshops or garages were able to obtain from the second-hand store.

GRAPESEED OIL *is said to have been proved an extremely desirable ingredient in paint used on airplane wings by R. F. Eaton, industrial chemist of Fresno, Calif. Oil extracted from the Muscat grape, according to Eaton, has a relatively slow-drying factor and high-spreading quality.*

Canadian Aircraft Organization Seeks Incorporation

Application has been made to the Department of State, Ottawa, Ont., for a charter of incorporation of Associated Aircraft, Ltd., with headquarters in Montreal and a capitalization of $3,750,000.

This is the central organization of Canadian manufacturers of air craft to which orders by the British Government for bombing planes are to be directed. The corporation will be given general powers to operate the industry in all its branches. It follows the agreement reached in Montreal a few weeks ago in which it was stated that the actual contracts would be placed in London following negotiations which now are underway.

Fourth Quarter Freight Loadings Estimated at 151,037 Cars

Freight loadings of automobiles, trucks and parts in the fourth quarter in 1938 are estimated at 151,037 cars by the Shippers' Advisory Boards of the Association of American Railroads. This estimate represents a decrease of 10.1 per cent under actual loadings of 168,031 cars in the fourth quarter of 1937.

New N.A.D.A. Constitution Features Proportional State Representation

A new constitution and by-laws giving members of the National Automobile Dealers Association a more direct voice in association affairs was recommended at a special meeting of the officers and directors concluded in Detroit on Sept. 28.

Proportional State representation based on membership is one of the features of the new constitution, which is the outgrowth of work of a special committee appointed at the national convention in Detroit last April. A complete report of the action will be released to the membership.

New officers elected to serve until the next annual meeting, are: J. W. Roby, of Shreveport, Pa., president; L. C. Cargile, of Texarkana, Ark., first vice-president; Frank H. Applegate, of Racine, Wis., second vice-president; J. Schiott, of Bridgeport, Conn., secretary; L. M. Stewart, of St. Louis, treasurer.

Mr. Roby appointed the following directors to serve on the executive committee: Will G. Price, of Wichita, Kan.; J. N. Mitchell, of Waco, Tex.; Herman Goodin, Huntington, Ind.; Stanley Horner, Washington; C. M. Bishop, of Brooklyn, N. Y.; E. M. Lied, Omaha, Neb., retiring president.

Passenger Car Exports Decrease in August

As indicated in the table below, exports of passenger cars and chassis in August fell off approximately 43 per cent from the July mark. A decrease of 2,464,032 units from the 5,695,012 shown for July of this year. Exports for the eight months ended August, 1938, were approximately 19 per cent below the figure for the eight months ended August, 1937.

	AUGUST 1938		AUGUST 1937		EIGHT MONTHS ENDED AUGUST 1938		EIGHT MONTHS ENDED AUGUST 1937	
	No.	Value	No.	Value	No.	Value	No.	Value
EXPORTS								
Automobiles, parts and accessories		$ 12,299,236		$ 23,148,905		$ 184,336,846		$ 228,630,963
PASSENGER CARS								
Passenger cars and chassis	5,286	3,230,980	11,939	6,222,838	106,818	66,796,397	154,340	89,758,997
Low price range $850 inclusive	4,805	2,725,811	11,142	5,343,099	93,367	52,254,109	141,188	75,147,126
Medium price range over $850 to $1,200	443	417,282	687	636,453	11,491	11,209,519	10,784	10,244,830
$1,200 to $2,000	27	40,983	82	118,445	1,562	2,315,496	1,736	2,662,471
Over $2,000	11	29,904	28	124,841	398	1,017,273	632	1,704,570
COMMERCIAL VEHICLES								
Motor trucks, buses and chassis (total)	5,788	3,843,434	16,830	10,439,210	78,963	50,571,427	108,213	63,012,403
Under one ton	823	364,364	2,433	972,260	12,160	5,154,007	14,101	5,585,403
One and up to 1½ tons	3,759	2,157,456	10,718	5,134,124	52,762	28,941,507	72,457	35,134,624
Over 1½ tons to 2½ tons	733	516,207	2,659	1,964,756	8,743	7,050,989	15,864	11,873,875
Over 2½ tons	399	728,973	898	2,238,100	4,251	8,624,389	4,821	9,616,128
Bus chassis	74	76,434	122	129,970	1,047	800,535	970	802,373
PARTS, ETC.								
Parts except engines and tires								
Automobile unit assemblies		1,367,774		2,415,339		31,967,175		37,059,698
Automobile parts for replacement (n.e.s.)		2,958,168		2,884,687		24,610,991		25,125,638
Other automobile accessories (n.e.s.)		300,358		361,784		2,286,368		2,904,326
Automobile service appliances		407,481		498,786		4,037,369		4,485,366
Airplanes, seaplanes and other aircraft	83	3,358,309	86	3,435,562	590	27,936,390	410	13,731,895
Parts of airplanes, except engines and tires		1,422,351		1,270,883		15,572,201		6,526,185
INTERNAL COMBUSTION ENGINES Stationary and Portable								
Diesel and semi-Diesel	27	167,814	80	186,933	335	1,535,575	565	1,365,545
Other stationary and portable								
Not over 10 hp.	1,324	57,786	1,108	76,095	9,802	564,501	13,921	749,978
Over 10 hp.	120	89,865	244	133,116	2,709	1,206,243	2,451	1,168,079
Engines for:								
Motor trucks and buses	1,720	188,676	1,890	182,583	19,228	2,119,324	21,315	2,120,379
Passenger cars	512	38,896	1,713	137,575	29,783	2,428,037	60,352	4,114,926
Aircraft	115	578,221	79	415,073	884	5,015,364	712	3,902,039
Accessories and parts		211,861		190,582		1,877,850		1,857,422
IMPORTS								
Automobiles (dutiable)	39	25,149	131	65,144	400	256,792	1,243	781,378

Ourselves and Government

Walsh-Healey Board Postpones Deadline for Filing Briefs to October 10 on Minimum Aircraft Wages

A weekly check list of legislative, executive and judicial actions affecting the automotive industries. First appeared in June 25 issue, p. 831. Corrected to Oct. 6.

CONGRESS

Adjourned June 16, sine die. All members of House and 36 Senators retire or face election in Autumn.

Legislative Legacies

MONOPOLY INVESTIGATION. Temporary National Economic (anti-monopoly) Committee undecided as to when public hearings will start. The Commerce Department's trade association questionnaires, sent out to some 2300 associations last week as part of the committee's work, have been criticized by a few business groups as encouraging associations to report on "irregularities" of other trade associations.

WAGES & HOURS. Administrator Andrews has tentatively divided the country into 12 divisions with a regional office to be established in Boston, New York, Philadelphia, Richmond, Cleveland, Chicago, Birmingham, Minneapolis, Kansas City, Houston, Denver and San Francisco. Present plans call for the placing of at least 50 representatives in the field by the law s effective date, Oct. 24.

New appointees include: George A. McNulty, former SEC associate general counsel, to be assistant general counsel; and Rufus G. Poole, former associate solicitor of the Labor Department, to be assistant general counsel.

The Administration is concentrating on the automatic wage and hour requirements of the Act rather than on appointment of industry committees whose job is to recommend wages above the automatic wage minima effective Oct. 24 in industries in interstate commerce.

DEPARTMENT OF JUSTICE

MONOPOLY. Status unchanged since report to AUTOMOTIVE INDUSTRIES issue of Aug. 13. Tentative consent decrees were reported drawn between the Department and the Chrysler Corp. and the Ford Motor Co., presumably for submission to independent finance companies and to the Federal Court at South Bend, Ind.

DEPARTMENT OF LABOR

PUBLIC CONTRACTS BOARD reports Government contracts for transportation equipment for the week ended Sept. 29, totaled $403,896.40. The awards were: North American Aviation, Inc., Inglewood, Calif., airplanes, $303,132; United Aircraft Corp., Pratt & Whitney Aircraft Division, Hartford, Conn., assembly bearings, $48,650; Hamilton Standard Propellers Division, governor propeller units, $12,075; The Gaertner Scientific Corp., Chicago, regulators, $27,600; General Motors Corp., Chevrolet Division, Detroit and Janesville, Wis., trucks, $12,439.40.

Miscellaneous awards for the same period were: Pioneer Instrument Co., Inc., Brooklyn, N. Y.; sextants, $24,743.75; The Lufkin Rule Co., Saginaw, Mich., calipers, an estimated $32,481; Barker Tool Die & Gauge Co., Detroit, gages, $10,392.25; Niles-Bement-Pond Co., Pratt & Whitney Division, Hartford, Conn., gages, $29,167.45.

STEEL LABOR. Chairman Holland of the Walsh-Healey Public Contracts Board promises minimum wage rates for firms doing government business will be recommended by the Board late this week or early next week.

AIRCRAFT LABOR. At the request of the National Aeronautical Chamber of Commerce and the AFL's International Assocation of Machinists, the Walsh-Healey Board has postponed for one week the deadline for filing additional briefs on their recommendations for a minimum wage of 60 cents for most employees, 40 cents for learners. New deadline date is Oct. 10.

FEDERAL TRADE COMMISSION

INVESTIGATION under the Withrow-Minton Resolution (M. J. Res. 351), Status remains unchanged since report in AUTOMOTIVE INDUSTRIES issue of Aug. 13.

F.O.B. PRICES case vs. G.M. and Ford, in which the FTC alleged that price advertising was misleading because of failure to include standard equipment, expected to be called up for hearing soon.

SIX PER CENT CASE. FTC cited Ford and General Motors in July, 1937, complaining of false and misleading representations in advertising prices of automobiles. Case has been in the hands of the trial examiner for several weeks. The FTC brief is expected to be ready soon.

FAIR TRADE PRACTICE rules for retail automobile dealers, introduced at public hearings during last NADA meeting in Detroit (see A.I., April 30, 1938), are still under study by the FTC fair trade practice division headed by George McCorkle.

MANUFACTURER - DEALER investigation under the Withrow Resolution. The investigators currently are going into more states and contacting more firms.

INTERSTATE COMMERCE COMMISSION

MOTOR CARRIER BUREAU. Effective date of the ICC order of July 12, prescribing hours of service regulations for common and contract carriers of property, has been postponed until Dec. 31. Further hearings will commence Nov. 4, in Chicago.

LABOR RELATIONS CASES

FORD vs NLRB. National Labor Relations Board announces that its full membership will hear oral arguments on Nov. 3 in Washington on the Trial Examiner's recommendations that the Ford Motor Co. be found guilty of violating the Wagner Act at its St. Louis, Mo., assembly plant. Trial Examiner Telford E. Dudley recommended that one hundred ninety-two employes be reinstated, that the company disband the Liberty Legion of America, Inc., and that it bargain with the United Automobile Workers Union.

Labor

UAW Reinstates Officers As Dispute Wanes

Reinstatement of four expelled officers of the United Automobile Workers Union this week virtually settled a long drawn out internal dispute which threatened at its height to divide the union permanently into several competing units.

A strike vote by UAW workers in the Buick division of General Motors originally scheduled to be held on Oct. 1 was postponed for at least a week pending conferences between union and company officials which were expected to eliminate the need for a vote.

Signing of a new one-year contract between the UAW and the Packard Motor Car Co. was announced on Oct. 5. Although still subject to ratification by the Packard local the new contract is expected to replace the former contract which expired on May 1. Principal changes in the new contract affect the seniority rights of employes with three or more years of service.

The executive board of the UAW voted Wednesday night at a meeting in Washington to demand a temporary 32-hour week throughout the automotive industries in which the union has organizations. It was stated that the board can make the demand on employers without referring the question to the union's membership. The demand, it was stated, will be made when contracts are renewed.

In Detroit, the UAW voted to obtain a voluntary check-off system in General Motors plants. Cards have been sent to members of GM locals which, when signed by the employes, would authorize the company to deduct union dues from pay checks.

Although details were not available, reports from Racine indicated that UAW locals in Racine, Kenosha and Milwaukee have accepted a proposal made by Nash Kelvinator Corp. which will settle a dispute centered around plans to discontinue operations in the Racine plant. Operations in the company's Seaman body plant in Milwaukee have already been resumed, to be followed shortly by resumption of work in the Kenosha plants.

Ford Announces "Mercury 8" As Addition for 1939

Confirming rumors which have been in circulation for months, Edsel Ford, president of the Ford Motor Co., announced on Thursday that a new car, bearing its own distinctive name, and selling in the lower medium-price range, would be added to the Ford-Lincoln line shortly before the New York Automobile Show.

The new car will be known as the "Mercury 8." It will have a wheelbase of 116 in., a V-8 engine more powerful than any hitherto marketed by the Ford company; hydraulic brakes and numerous advanced mechanical features, the announcement said.

Mr. Ford said the new car would be priced in the range between the de luxe Ford V-8 and the V-12 Lincoln-Zephyr, and would enable the Ford Motor Co., with five lines of cars, which include also the Ford V-8 and the V-12 Lincoln, to bracket the market in which more than 90 per cent of all cars today are bought.

BUSINESS IN BRIEF

Written by the Guaranty Trust Co., New York

Further gains in business activity were recorded last week. Transcending in importance all other developments was the dramatic ending of the threat of immediate general war in Europe. Immeasurable strengthening thereby of the bases of business confidence in this country was promptly recognized.

The index of the *Journal of Commerce* for the week ended Sept. 24 reached a new 1938 peak of 86.0, comparing with a revised figure of 84.3 for the preceding week, and continuing the upward trend of this index of activity, which has been interrupted but once—in the week which contained Labor Day—since its upturn in July. The corresponding weekly figure in 1937 was 103.3.

Railway freight loadings during the same week also continued an advance similarly interrupted in the week which included the Labor Day holiday. Loadings for the week ended Sept. 24 totaled 675,553 cars, showing a gain of 15,411 cars over the figure for the preceding week. The latest weekly total is 19.3 per cent below that recorded a year earlier.

Electric current produced in the week ended Sept. 24 reflected effects of the tropical storm which wrought heavy damage to property in New England. Production by the electric light and power industry declined, according to preliminary reports, by 3.08 per cent from the output in the preceding week, and was 5.3 per cent below the figure for the like period in 1937.

Lumber production during the week ended Sept. 17 stood at 70 per cent of the 1929 weekly average, with shipments at 67 per cent of the 1929 average. Both production and shipments made substantial gains over the figures reported for the preceding (holiday) week—with production at approximately the highest level so far recorded this year.

Crude oil production increased in the week ended Sept. 24, average daily output exceeding by 12,100 barrels that of the preceding week. The latest estimated average, 3,251,150 barrels, compares with 3,666,300 barrels a year earlier, and with a current estimated demand of 3,444,300 barrels as calculated by the Department of the Interior.

Professor Fisher's index of whose sale prices of commodities for the week ended Oct. 1 stood at 80.4, as compared with 80.8 for the preceding week. The latest figure is the same as that for the like period five weeks earlier.

The consolidated statement of the Federal Reserve banks for Sept. 28 showed for the week then ended an increase of $184,000,000 in member bank reserve balances, an increase of $829,000 in bills discounted, and practically no change in bills purchased or in industrial advances. Estimated excess reserves of member banks increased $150,000,000 in the week, to a total of $2,890,000,000.

Canadian Casings Exports

Canadian exports of pneumatic tire casings during the month of August, totaled $633,652 against $502,643 in July, and $796,865 in August, 1937.

Advertising News Notes

Stuart Campbell, formerly vice-president and art director of Kenyon & Eckhardt, Inc., and who served Ford, Lincoln, and Quaker State Oil accounts in former advertising agency connections, has been appointed art director of Abbott Kimball Co., New York.

E. M. (Gene) Zuber, who left Campbell-Ewald on Sept. 17 to become western manager of the National Outdoor Advertising Bureau, was doubly honored at a farewell party staged for him by H. T. Ewald, president of the agency with which he has spent the past 14 years. Ewald presented Zuber with an engraved gold watch as a token of the esteem in which he and the agency staff held the departing vice-president. Then, in behalf of W. E. Holler, general sales manager of Chevrolet, C. P. Fisken, advertising manager, conferred on Zuber membership in Chevrolet's "All-America" selling team, an honor heretofore restricted to members of Chevrolet's official family.

William H. McGuaghey, formerly with the Western Electric Co., has joined the public relations department of the American Automobile Association, Indianapolis.

George W. Danielson, head of Danielson & Son, Providence, R. I., active in advertising machine tool and manufacturing machinery accounts for many years, died Sept. 28 in that city.

Keith Evans, founder of the National Industrial Advertisers Association and advertising manager of Joseph T. Ryerson & Son, Inc., Chicago, will speak at the Oct. 17 meeting of the Industrial Marketers of Detroit, chapter of the N.I.A.A.

E. W. Mahoney, formerly with Graham-Paige advertising department and Goodyear Tire & Rubber Co., has become associated with Burton Shaw Ickes, Inc., Indianapolis advertising agency, as vice-presidient.

Rallying to the support of tire manufacturers who continue to use cotton cord fabric for tire construction, and to meet the resistance of those manufacturers who lately have developed pneumatic tires with rayon cord fabric in place of cotton, the Bibb Manufacturing Co. of Macon, Ga., one of the largest cord tire fabric manufacturers in the world, has launched an intensive and comprehensive advertising campaign which includes color pages in the Saturday Evening Post and spreads in tire trade and automotive journals. The new Bibb development, the "H-R" (Heat resistant) cord tire fabric is the nucleus of the new advertising.

Grantland Rice, sports authority, recently began his sixth consecutive season as football commentator on the Cities Concert program. The weekly event is heard over 46 stations. Lord & Thomas is the agency.

Automobile advertising will begin to work on the prospective owner's pocketbooks earlier than usual this year. Buick's "teaser" copy has begun to run in newspapers; Plymouth has used newspapers and full-pages in magazines; and Studebaker begins soon with liberal space in 1400 newspapers, and a heavy schedule in four colors in magazines. Beauty is the copy theme of these early advertisers. Studebaker announces the "world's smartest car," and Buick will hammer away at "Buick's the beauty." Roche, Williams & Cunnyngham, Inc., the Studebaker agency, is stunting direct mail from the Normandie to prospects.

Teaser advertising appearing in around 100 newspapers signified the initial break for 1939 model promotion by Olds. The copy will appear about once a week until the cars are publicly announced.

American Bosch Corp. will begin a campaign on Diesel equipment, magnetos and generators next month. E. T. Howard Co., Inc., is the agency.

Pure Oil Co., Chicago, has appointed Leo Burnett Co., Inc., of that city to handle its advertising. Paul C. Halper is account executive.

Alco-Save, a device to prevent anti-freeze compounds from evaporating, has made an advertising hookup with the Pennsylvania Alcohol Co., maker of Quaker brand anti-freeze, in a joint marketing plan, to compete with the non-evaporating types made by National Carbon, duPont, etc. Evans Products Co., Detroit, manufactures the device. Grace & Bement is the Evans agency, and Platt-Forbes is the Quaker agency.

Don Goddard, former New York newspaper man and publisher of an upstate paper, and radio author and commentator, is one of the three regional announcers for the Goodyear Farm Radio News series on 47 NBC stations. Phil Evans will handle the news from Chicago, and Robert S. Clough from Kansas City. Arthur Kudner, Inc., is the agency.

Beside its hourly all-star show over the Columbia network, the Texas Company has signed with National Broadcasting Co. for 15-minute transcribed programs in a new dealer cooperative campaign, using 148 stations in 42 states, the District of Columbia, and Canada. The campaign was planned by Buchanan & Co., Inc.

Ten school boys, winners of the Goodyear Tire & Rubber Co. essay contest on "Rubber Tires for Farm Tractors and Implements," were entertained by Paul W. Litchfield, the company's president, before starting on a trip to the Canadian North Woods. The trip, and visit in the plant at Akron, was the prize for winners.

American Forge Co. has named D'Evelyn & Wadsworth to handle its sales promotion and advertising.

A.S.M.E. Announces Officers for 1939

The American Society of Mechanical Engineers has announced the election of the following new officers for 1939 who will assume office on Dec. 9, 1938: president, Alexander G. Christie, professor of mechanical engineering, Johns Hopkins University, Baltimore, Md.; vice-presidents, Henry H. Snelling, senior member, Snelling & Hendricks, Washington, D. C.; William Lyle Dudley, vice-president in charge of design and sales, Western Blower Co., Seattle, Wash.; Alfred Iddles, application engineer, Babcock & Wilcox Co., New York; James W. Parker, vice-president and chief engineer, Detroit Edison Co., Detroit; managers, Clarke Freeman, vice-president in charge of fire prevention engineering and underwriting, Manufacturers Mutual Fire Insurance Co., Providence, R. I.; William H. Winterrowd, vice-president, Franklin Railway Supply Co., Chicago; and Willis R. Woolrich, dean of engineering, University of Texas, Austin, Texas.

Waukesha Profit for Year Ended July 31 Totaled $451,685

The annual report to stockholders of the Waukesha Motor Co. for the year ended July 31 shows a net profit of $451,685.41, a figure bettered only three times since 1929. These net earnings paid the dividend of $1 per share on the 400,000 shares of $5 par common stock, and added $51,685.41 to the surplus account, which amounts to $3,624,660.39.

For the period reported on, net sales totaled $7,707,151.49; operating expenses, including state, federal and general taxes, depreciation and all other costs, amounted to $7,255,466.08.

The statement also shows a net worth of over $6,000,000 against current liabilities of $396,585 (which have been reduced by $76,734 since July 31). Inventory, which reached nearly two-and-a-half million dollars on the 1937 statement, is carried at $2,116,130.92.

AMA Committee Seeks Adjustment of Ocean Freight Rates

At recent sessions of the export rate committee of the Automobile Manufacturers Association with the several steamship conferences, satisfactory rates are reported to have been arranged to cover the industry's exports for the 12 months beginning Oct. 1, 1938, when the shipping of new models abroad begins in quantity.

A year ago there were general increases in steamship freight rates. The committee has sought this year to have the prior rates restored and has been successful in dealing with the lines operating to Australia, New Zealand, Europe and East Coast of South Africa. Further sessions with additional Steamship Conferences will be held in New York early in October.

The major tonnage of important steamship lines consists of automobiles and parts en route from the factories to foreign countries and in the calendar year 1937 accounted for 146,728,200 cu. ft. of space sold by the steamship lines.

On the manufacturers' committee dealing with this question are: Messrs. D. J. Elmore (Studebaker), chairman; F. A. Allen (Hudson); T. J. Gilsenan (General Motors); L. W. Krass (Chrysler); Gilbert D. Smith (International Harvester); J. S. Marvin (Automobile Manufacturers Association).

Motor Boat Show Date Set for Jan. 6-14

The 1939 National Motor Boat Show will be held Jan. 6 to 14, according to Henry R. Sutphen, president of the National Association of Engine and Boat Manufacturers. The annual exposition will be staged as usual at Grand Central Palace in New York City. L. Bradley Chapman, of New York, has been appointed to the Association's exhibition committee, which is headed by Charles A. Criqui, of Buffalo, N. Y. Other members of the show group are George W. Codrington, of Cleveland, Ohio; Everett E. Palmer, Cos Cob, Conn.; and Mr. Sutphen. Ira Hand, secretary of the organization, is manager of the annual trade expositions.

Packard Lowers Prices Of Several '39 Lines

Packard prices announced for 1939 feature the new super eight series priced at $1,955 to $2,600. Reductions have been made on several models in the 120 series, including the four-door touring sedan, two-door touring sedan, club coupe and two-passenger business coupe. Two models in the same series with 148-in. wheelbase also are being offered at substantial reductions; the seven-passenger touring sedan and the touring limousine. Prices of the Six and Twelve remain substantially the same as for 1938. Announced prices on all models are as follows:

Packard Six (5-wheel equipment)	Advertised Delivered Price 1939	1938
4-dr. touring sedan	$1,095	$1,070
2-dr. touring sedan	1,065	1,045
Club coupe	1,045	1,020

New Truck Registrations

Trend of new truck registrations continued upward with a slight increase in the number recorded for August over July of this year as indicated in the table below. The 1938 August figure, however, was approximately 44 per cent under the mark of 60,872 registrations established in August, 1937.

Per cent change in the eight months of 1938 as compared with the same period in 1937 was minus 43.3.

	August 1938	July 1938	August 1937	EIGHT MONTHS 1938	EIGHT MONTHS 1937	Per Cent Change, 8 Months 1938 over 1937	Per Cent of Total Eight Months 1938	Per Cent of Total Eight Months 1937
Chevrolet	11,268	11,226	19,477	87,619	137,404	− 36.2	33.22	29.57
Ford	9,471	9,425	16,526	73,463	150,412	− 51.1	27.85	32.37
International	5,361	4,782	7,700	37,416	53,657	− 30.2	14.18	11.55
Dodge	3,286	3,236	6,906	26,121	45,045	− 42.0	9.90	9.69
G. M. C.	1,909	1,675	4,529	14,353	32,335	− 55.5	5.44	6.96
Plymouth	593	660	1,664	5,473	9,854	− 44.4	2.07	2.12
Diamond T	397	382	665	3,020	6,211	− 51.4	1.14	1.34
Mack	370	347	430	2,628	4,007	− 34.2	1.00	.86
White	250	298	421	2,373	4,240	− 44.0	.90	.91
Reo	231	264	337	1,966	3,255	− 39.5	.75	.70
Willys-Overland	158	182	105	1,385	728	+ 90.3	.53	.16
Studebaker	209	116	556	1,366	4,143	− 67.0	.52	.89
Autocar	88	129	174	1,100	1,501	− 26.7	.42	.32
Federal	125	117	161	936	1,825	− 48.7	.35	.39
Divco	98	177	115	881	847	+ 4.0	.33	.18
Brockway	111	99	134	819	1,149	− 28.7	.31	.25
Hudson	61	67	539	606	3,901	− 84.5	.23	.84
Indiana	39	39	99	320	1,036	− 69.1	.12	.22
Stewart	28	36	93	269	877	− 69.3	.10	.19
F. W. D.	13	23	30	218	314	− 30.5	.08	.07
Pontiac	14	25	.....	200	.....	.....	.08	.....
Sterling	23	34	15	171	235	− 27.2	.06	.05
Stutz Pak-Age Car	1	4	61	91	491	− 81.5	.03	.11
Miscellaneous	129	133	135	991	1,168	− 15.0	.39	.26
Total	34,231	33,476	60,872	263,785	464,635	− 43.3	100.00	100.00

2-4 conv. coupe	1,195	1,135
2-business coupe	1,000	975
Chassis	735	710
Packard Eight (or 120) 5-wheel equipment		
4-dr. touring sedan	1,295	1,325
2-dr. touring sedan	1,265	1,295
Club coupe	1,245	1,270
2-4 conv. coupe	1,390	1,365
Conv. sedan	1,700	1,650
2-business coupe	1,200	1,225
Chassis	935	935
148-in. Wheelbase		
7-touring sedan	1,805	1,995
Touring limousine	1,955	2,110
Packard Super Eight (5-wheel equipment)		
4-dr. touring sedan	2,035	....
Club coupe	1,955	....
2-4 conv. coupe	2,180	....
Convertible sedan	2,435	....
Chassis	1,465	....
148-in. Wheelbase		
7-touring sedan	2,460	....
Touring limousine	2,600	....
Packard Twelve		
Formal sedan	4,865	4,865
4-dr. tour. sedan	4,155	4,155
Club sedan	4,255	4,255
5-coupe	4,185	4,185
2-4 coupe	4,140	4,135
2-4 conv. coupe	4,375	4,370
Victoria	5,230	5,230
Chassis	2,950	2,950
7-touring sedan	4,485	4,485
Touring limousine	4,690	4,690
Conv. sedan	5,395	5,390
Chassis	3,145	3,140

Inland Licenses Carnegie-Illinois to Make Lead-Bearing Steel

Inland Steel Co. has licensed the Carnegie-Illinois Steel Corp. to produce its new lead-bearing steels, according to an announcement made at the Inland offices.

The development of lead-bearing steel was first announced by Inland in May of this year. The new steel has been produced in hot-rolled form under the trade name, Ledloy, and has been cold-finished by a number of cold-drawing firms. It is expected that Inland will license other steel companies in the near future.

American Bosch Corp. Stockholders Vote Change in Name

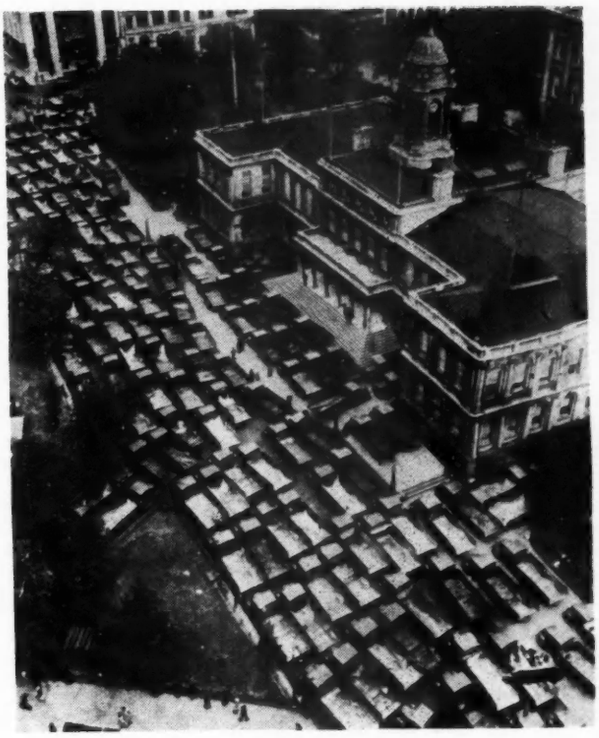
At a special meeting held on Sept. 26, stockholders of the United American Bosch Corp., Springfield, Mass., voted to change the name of the corporation to American Bosch Corp., and to change authorized capital stock to 750,000 shares of par value $1 per share.

Charles A. Carlisle

Charles Arthur Carlisle, former director of the Studebaker Corp., died recently in South Bend. He was 74 years old and had retired many years ago. He was at one time vice-president of the National Association of Manufacturers.

WAR'S END?

When New York Mayor LaGuardia's proposal to end the current trucking strike was refused by the trucking companies, although accepted by the striking drivers, he threatened to break the strike by using city trucks to move materials now at a standstill. To lend weight to his words, he caused hundreds of department of sanitation trucks to cluster around the City Hall.



International Photo

Sales Finance Convention Set for Chicago, Nov. 14

The annual convention of the National Association of Sales Finance Companies scheduled for Nov. 14 and 15 will be held at the Stevens Hotel in Chicago, according to announcement made by A. D. Weller, president of the organization. Members have been notified to arrive prepared to discuss in particular the subject of bank competition with sales finance companies.

"Bank competition is perhaps the biggest problem to face sales finance companies since the National Association was organized in 1924," states *Time-Sales Financing*, official publication of the organization. "It is a problem that faces all of them, not merely the 'nationals,' not merely the 'independents,' not merely any other group."

Also listed for discussion are such topics as dealer participation in the finance charge, education of the public about the finance business, Federal probes, larger down payments in diversified financing, sound terms and credit, adequate purchaser equity, dealer conversion by double financing, reduction of insurance and credit losses, and standard cancellation notices in insurance premiums.

517 New Cars and Trucks Registered In Mexico During June and July

Registration of new automobiles and trucks during June and July in the Federal District of Mexico, which includes Mexico City, has been officially announced as follows—Automobiles: Ford, 115; Chevrolet, 85; Opel, 20; Lincoln-Zephyr, 17; Oldsmobile, 17; Buick, 15; LaSalle, 8; Plymouth, 7; Pontiac, 7; Packard, 6; Chrysler, 5; Cadillac, 4; Dodge, 3; Mercedes-Benz, 3; Graham, 3; Nash, 3; Studebaker, 2; Willys, 2; Hudson, 2; Fiat, 1; and D.K.W., 1. Trucks: Ford, 82; Chevrolet, 40; Oldsmobile, 16; G.M.C., 16; International, 14; Diamond T, 7; Opel, 5; Reo, 4; Stewart, 2; Fargo, 2; Indiana, 1; Tempo, 1; and White 1.

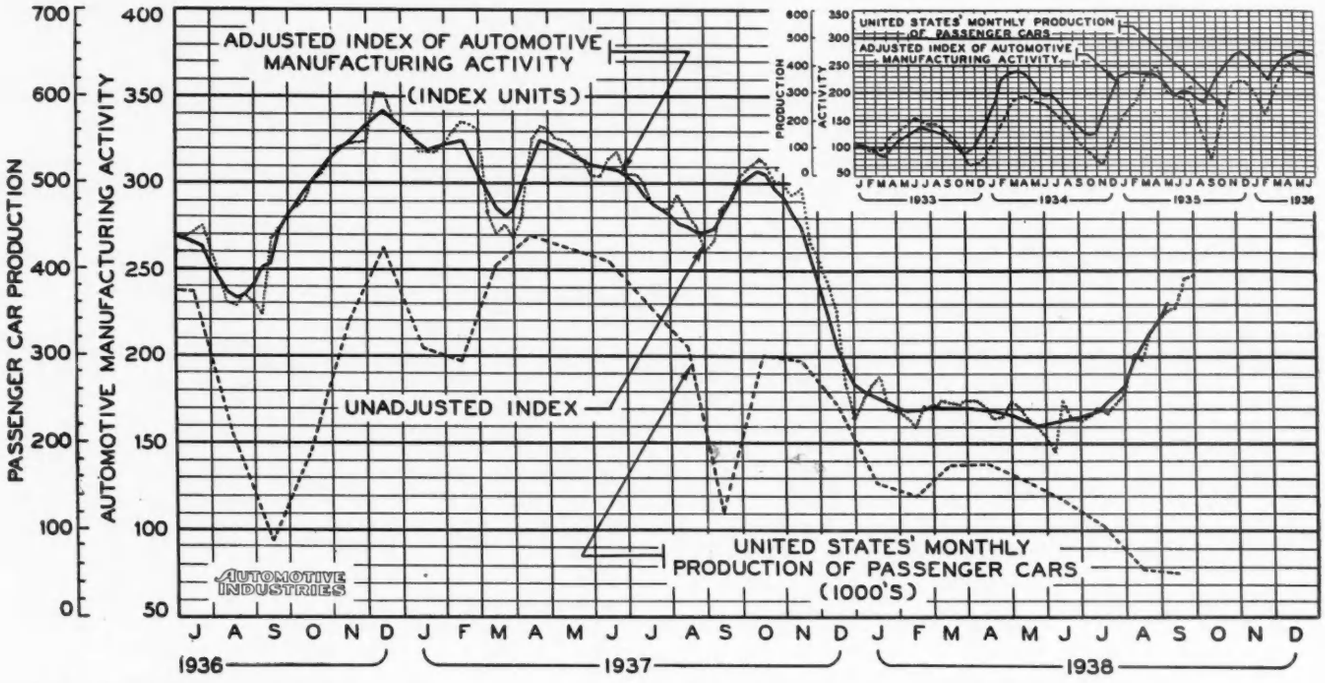
Warner & Swasey Co. Celebrates Production of 50,000 Lathes

Executives and works managers of 75 leading American industries joined with veteran employes of the Warner & Swasey Co. to celebrate on Sept. 29 completion of the fifty-thousandth turret lathe built by the Cleveland company since its organization in 1880.

Dr. James S. Thomas, president of the Chrysler Engineering Institute, Detroit, was the principal speaker at a dinner concluding the celebration. Charles J. Stilwell, vice-president of the Warner & Swasey Co., was toastmaster.

C. W. Deeds, vice-president and general manager of the Pratt & Whitney Aircraft Co., and J. C. Ward, Jr., assistant general manager of this company, accepted the lathe, which will be used in the manufacture of aircraft engines at East Hartford, Conn.

Charting a New Approach to the Industry's Future Production Schedules


ADJUSTED INDEX OF AUTOMOTIVE MANUFACTURING ACTIVITY
(INDEX UNITS)
UNADJUSTED INDEX
UNITED STATES' MONTHLY PRODUCTION OF PASSENGER CARS (1000'S)
PASSENGER CAR PRODUCTION
AUTOMOTIVE MANUFACTURING ACTIVITY
AUTOMOTIVE INDUSTRIES
J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J
1936
1937
1938
UNITED STATES' MONTHLY PRODUCTION OF PASSENGER CARS
ADJUSTED INDEX OF AUTOMOTIVE MANUFACTURING ACTIVITY
1933
1934
1935
1936

Significant changes in the rate and trend of automobile production are predictable weeks in advance from the chart appearing above, which will be henceforth an exclusive, weekly feature of AUTOMOTIVE INDUSTRIES.

Essentially the chart shows the relation between the progress of two types of manufacturing activity in the automotive industry: The lower (dash) line is a conventional plotting of U. S. monthly production of passenger cars, with the data points placed in the middle of each month. The two upper curves are both concerned with the general rate of manufacturing activity in the industry, including final assemblies, but more importantly, all other phases of automotive manufacturing activity — production of parts and accessories, dies, tools, and many components of the automobile. Usefulness of the chart derives from the fact that there is a fairly uniform time-lag between an upturn in the general manufacturing rate of the industry, and its translation into finished automobiles.

Of the two upper curves, the dotted line is the fundamental. On the present chart it portrays to Saturday, Oct. 1, accurate index figures of the general manufacturing rate in the industry, together with the minor fluctuations which beset it, without affecting the general trend. The solid-line which winds through it represents a statistical adjustment of the data which appear in the dotted line curve, with a view to showing graphically the smooth trend of the general manufacturing rate. Because of the statistical method used in arriving at the trend curve, the last datum point will always be four weeks behind that on the dotted curve.

The inserted chart which appears in the upper right hand corner of the large-scale chart carries the trend data back to the beginning of 1933.

Data appearing in the chart will be corrected weekly, and significant changes will be noted in explanatory matter beneath the chart.

It is the belief of AUTOMOTIVE INDUSTRIES that by this means everyone who is affected by the course of automobile production will be provided with a useful forecasting medium.

Correspondence on any phase of the chart is invited, and the right is reserved to make changes in the method of presentation, with due explanation of the reasons involved.

MEN OF THE INDUSTRY

JULIUS P. HEIL, president and treasurer of the Heil Co., Milwaukee, manufacturer of steel tank truck bodies, hydraulic hoists and numerous other fabricated articles, was nominated for the Republican candidate for Governor of Wisconsin at the September primaries. It is his first excursion into politics.

EDWARD HUTCHENS, founder and president of the Utility Mfg. Co., Cudahy, Wis., and a pioneer designer and manufacturer of special machinery for tire and rubber factories, is taking his first real vacation since entering industry 57 years ago. He sailed for Europe a few days ago and after touring the Continent will embark on a world cruise.

WALTER F. BUGENHAGEN has been appointed general sales manager of the Aluminum Goods Mfg. Co., Manitowoc and Two Rivers, Wis., to fill the vacancy caused by the death of Carl F. Isselman. Mr. Bugenhagen joined the company 28 years ago as an office boy and has seen service in practically every department. A considerable part of the firm's output consists of aluminum stampings and castings and moldings of stainless steel.

FRANK M. DAVIS, president of the Davis & Thompson Co., Milwaukee, specializing in the design and manufacture of mass production milling machines for the automobile industry, has returned from trip of three months in Europe, where he contacted customers and engaged in a general study of business potentialities.

C. F. KETTERING, vice-president of General Motors Corp., in charge of research, returned from abroad last week. He devoted four weeks in England to a study of developments in the automotive field.

JAMES A. GRIER, has been named manager of the central region of the Pontiac Motor division of General Motors.

Promotion of three men to fill positions left vacant when he became head of AC Spark Plug division of General Motors, has been announced by **L. C. GOAD,** AC general manager. **PAUL W. RHAME** is the new general manufacturing manager, **JOSEPH A. ANDERSON** becomes assistant general manufacturing manager, and **EDWARD D. ROLLERT,** process engineer.

DOUGLAS M. CLARKE, formerly managter of the sales office in New York for AC Spark Plug division of General Motors, has been appointed to the general sales staff.

FRANK W. HEISKELL has retired from his position as advertising manager of the International Harvester Co. after 45 years of continuous service. His successor will be **A. C. SEYFARTH,** assistant advertising manager.

DAVID E. ANDERSON has resigned as chief engineer of the Bohn Aluminum and Brass Corp.

C. N. KIRKPATRICK, secretary and sales manager of Landis Machine Co., Inc., sailed Oct. 8 to visit England and Europe.

BEECROFT

MCGRAW

NEELY

BEALL

GRUNDER

LEMON

WOOLSON

SPICER

LITTLEWOOD

CUMMINGS

SHOEMAKER

MARSHALL

WOOD

CARRON

NOMINEES Above are the nominees for officers and members of the council of the Society of Automotive Engineers for 1939. William J. Davidson, whose picture appears on page 423 of this issue, was nominated as president. In 1938 he was elected as a council member for a two-year term. As he cannot serve as both president and council member in 1939, his place in the council will be filled by a member of the society who will be nominated next January.

MATHEWS

HURLEY

SAE Nominees

(Continued from page 423)

Councilors (Term of 1939-1940): W. E. McGraw, chief engineer, Chrysler Corp. of Canada, Ltd.; G. L. Neely, research engineer in charge of fuels and lubricants, Standard Oil Co. of Calif.; A. L. Beall, research engineer, Wright Aeronautical Corp.

Members of the 1939 council will include also the following three men who were elected at the beginning of 1938 for a two-year term: L. J. Grunder, automotive engineer, Richfield Oil Corp.; B. J. Lemon, new products dept., U. S. Rubber Products, Inc.; W. J. Davidson, president.

Serving on the 1939 council as past-presidents are: H. T. Woolson, executive engineer, Chrysler Corp., and C. W. Spicer, vice-president, Spicer Mfg. Corp.

Vice-presidents are: *Aircraft*—W. Littlewood, vice-president, engineering, American Airlines, Inc.; *Aircraft-Engine* — H. K. Cummings, chief, automotive powerplants section, National Bureau of Standards; *Diesel-Engine* — F. G. Shoemaker, chief engineer, Detroit Diesel engine division, General Motors Corp.; *Fuels & Lubricants*—A. G. Marshall, manager, technical applications, Shell Oil Co.; *Passenger-Car*—John G. Wood, assistant chief engineer, Chevrolet Motor division, General Motors Corp.; *Passenger-Car-Body* —I. L. Carron, body engineer, Dodge Bros. division of Chrysler Corp.; *Production*—W. B. Hurley, staff engineer, sales department, Detroit Edison Co.; *Tractor and Industrial Power Equipment* — J. S. Erskine, engineer, allied industrial equipment, International Harvester Co.; *Transportation and Maintenance*—H. O. Mathews, automotive engineer, Public Utility Engineering & Service Corp.; *Truck, Bus & Railcar*—Carl J. Bock, truck division engineer, General Motors Truck & Coach division. Yellow Truck & Coach Mfg. Co.

Production

(Continued from page 423)

though some of the cars among the first to be presented are already seen on city streets. This is true of Plymouth, Studebaker and Buick.

Buick completed 14,500 of its new models during September and expects to have close to 20,000 in the hands of its dealer organization by Oct. 8. Its dealers report more orders for immediate delivery than at the same time a year ago.

General Motors divisions were expected to account for close to 11,000 of the current week's total with Chrysler divisions contributing slightly more than 7000. Among the independents, Studebaker was leading the production closely followed by Packard and Hudson.—J. A. L.

Olds Prices Announced

Delivered prices at Lansing for the 1939 line of Oldsmobile, as announced on Thursday, are as follows: Series 60—business coupe, $777; club coupe, $833; two-door sedan, $838; four-door sedan, $889.

For the series 70 prices are: Business coupe, $840; club coupe, $891; two-door sedan, $901; four-door sedan, $952. For the series 80: business coupe, $920; club coupe, $971; two-door sedan, $992; four-door sedan, $1,043.

Hudson Announces Three Lines

Hudson Motor Car Co. has announced three lines for 1939. The 112 with 112-in. wheelbase, 86 hp.; the Six with 118-in. wheelbase, 96 hp.; the Country Club series, 122 in. wheelbase sixes and eights with 101 and 122 hp. respectively; and a special eight-cylinder custom sedan on 120-in. wheelbase. All bear the Hudson name.

Price reduction on the 118-in. Six is $30. The Country Club series carries reductions up to $112.

Plan State Law Clearing House for Automotive Trade Groups

Preliminary steps were taken at the Motor Vehicle Industries Conference in New York on Sept. 27 to form a clearing house for information on State legislation affecting motor vehicle interests which is pending during the coming winter.

Representatives of 22 trade associations were present at the conference, which unanimously favored the plan to coordinate information on State legislation through a central source.

Some of the major issues in the 44 States where legislation will be enacted during the forthcoming sessions will be gasoline tax rates, registration fees and dates of expiration, diversion of highway funds, traffic regulation, dealer licensing laws, laws against selling below cost, trade mark registration, labor legislation, business privilege taxes, sales taxes and taxation in many other forms, both direct and indirect.

Continental Motors Reports Sales Off 30.3% in Third Quarter

Continental Motors Corp. has reported a decrease of 30.3 per cent in sales in its third quarter ending July 31, 1938, as compared with second quarter of the current fiscal year. Losses (after depreciation of $78,371.22) were $148,685.08 for the third quarter, as compared with $29,692.98 for the second quarter.

Sales for the first nine months of the current fiscal year were 29.9 per cent less than for the same period of last year, resulting in a loss (after depreciation of $235,409.52) of $339,106.44, as compared with a profit of $88,080.46.

On July 31, 1938, unfilled orders on the books of the corporation amounted to $1,920,296.19.

Knudsen Will Address Overseas Visitors to Automobile Show

Several hundred representatives of foreign automobile interests have accepted invitations to attend the International Day luncheon-conference to be held in connection with the National Automobile Show in New York City. The conference, scheduled for Nov. 14, at the Ritz-Carlton, will be addressed by William Knudsen, president of General Motors Corp., and other prominent people in the automobile and transportation industries. The luncheon-conference is sponsored annually by the Automobile Manufacturers Association.

TOOLS OF TOMORROW

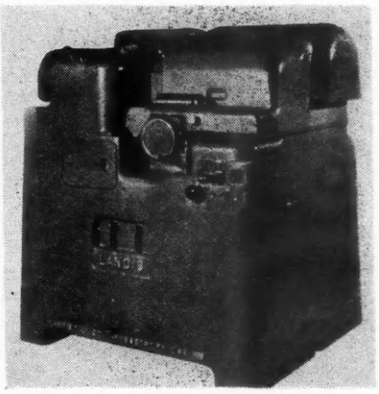
Grinder

. . . Automatic work-cycle machine developed by Landis

Claimed to be unlike any other grinder of its general type with respect to operation, design, and appearance is the new Landis No. 2 "Race-a-way" grinder. The work cycle of this machine is automatic after it has been started. It is only necessary for the operator to load the work and press the "cycle-start" button. From that point on the race is ground to size and all the machine movements stopped without further attention. Provision has been made for what might be termed form-grinding each raceway at the end of the cut. When the work is practically to size, feeding-in movement stops and work-head oscillation also stops with the work-head centered. The maker points out that this method makes it unnecessary to form-grind races after they have been ground in order to obtain the degree of finish required for precision types of bearings.

Movements of the machine are controlled by electric push buttons and selector switches, which means that the equipment is largely electrically operated, although certain hydraulic movements are also employed. The hydraulic wheel reset mechanism is a time-saving feature. Through its use the wheel base resets itself automatically at the end of each grinding cycle, the amount of reset being adjustable and being equal to the amount of stock removed from each race.

Automatic sizing is accomplished by the Landis-Solex sizing device in combination with an electric timing device. Pre-loaded ball bearings carry the large oscillating column and the work spindle also revolves in preloaded ball bearings. Oscillating movement of the work head is actuated through an adjustable crank arrangement. There is a worm gear speed reduction with four oscillating speeds available. The work drive motor is mounted on the lower end of the oscillating column, being carefully positioned on the exact center of the column. From this motor the drive is to the left-hand end of the work spindle through a V-belt with no intermediate pulleys or idlers. Adjustable pitch pulleys give a wide work speed ratio. For grinding double row races a



Landis No. 2 "Race-a-way" grinder

lever with rack and pinion is provided so that the slide carrying the work head may be moved rapidly between two adjustable stops.

The wheel base is moved into and out of grinding position by means of crank motion. On the internal machine, cam motion is combined with the crank motion for the cross movement of the wheel into and out of the race. A hydraulic motor actuates these two motions which, because of their pure harmonic nature, result in rapid yet smooth acceleration and deceleration. The anti-friction bearing wheel spindle is located within an octagon slide, four surfaces of which are utilized as bearing surfaces. When the slide moves forward bringing the wheel into grinding position on the internal machine it comes against a stop and locks itself.

The outside of the bed of this machine is completely devoid of attachments, appendages, and control boxes. Separate compartments house the various mechanisms, the electric control panel and the sizing device controls. Everything is completely covered yet quickly accessible. Also the edges of the doors are so machined that coolant or oil cannot run into the compartments from the outside and the doors are of such size that the mechanisms within may be worked at with comfort and convenience. *(See next page, please)*

An interesting feature is the arrangement of compartment doors covering electric controls. When these are opened, the entire electric circuit is killed. All the wires are in lead cables to insure complete freedom from trouble due to oil deterioration of the wire insulation.

Fastening Unit

. . . Shakeproof offers pre-assembled lock washer and standard machine screw

Announcement was made recently by the Shakeproof Lock Washer Co., Chicago, of a new fastening unit consisting of a pre-assembled Shakeproof lockwasher and standard machine screw. The patented assembly, is trade-named Sems.

Sems, as the manufacturer points out, save time and money by reducing labor costs, speeding up production and eliminating waste. An additional advantage is the better product control provided by the unit, screw being equipped with the correct size of lock washer for its particular type of head. And, as the lock washer cannot drop off, no screw can be applied without having a lock washer under the head.

Claimed to be the first basic improvement in gaskets in many years, a new Thiokol-treated gasket has been announced by Felt Products Mfg. Co., Chicago. The company is licensed by the Chrysler Corp. to manufacture and sell the product.

Identified as Fel-Seal, the new gasket is rubber-like and is said to have permanent resiliency. The manufacturer claims that it is impervious to water, oil and other penetrating liquids ordinarily destructive to gaskets. While Fel-Seal will withstand intense heat, it is not intended for the high temperatures encountered in engine manifolds and cylinder heads.

The Black & Decker Mfg. Co., Towson, Md., has brought a new heavy-duty, portable production drill which it calls the Holgun. Capacity in steel is ½ in., the no-load speed is 1700 r.p.m., the net weight only 2¾ lb., and the over-all length is 6¾ in. It is powered by a Universal motor which operates on a.c. or d.c.

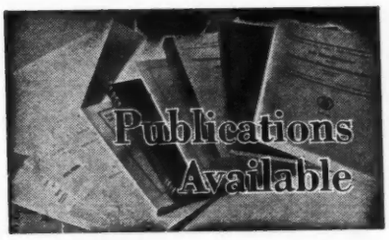
C. J. Tagliabue Mfg. Co., Brooklyn, N. Y., has developed a new direct-set indicating controller, model No. 9-TIC for temperature and model No. 9-PIC for pressure.

Production to Start Soon on Rear-Engined Package Car

A new package car, designed for businesses that require frequent delivery stops, has been announced by R. H. Faulkner, president of the Pak-Age-Car Corp., Connersville, Ind.

The new delivery car, which is rear engine driven, is successor to the Stutz Pak-Age-Car, which has been in production for several years. The tools have been purchased from the Stutz company and moved to Connersville. Production will start on Oct. 15, it was said, and new models of the truck will be displayed at the fifth annual National Motor Truck Show in New York in November. The truck will also be displayed at the Chicago Automobile Show.

Mr. Faulkner stated that the new car will be built in the Auburn plant at Connersville. It will be powered by a Lycoming motor and the driving unit will be made by the Columbia Axle Co.



Pratt & Whitney division Niles-Bement-Pond Co., Hartford, Conn., has issued circular No. 442 on its new model **Supermicrometer** which has a completely revised and basically different pressure tailstock.*

The Severance Tool Mfg. Co., Saginaw, Mich., has published a booklet covering its line of **midget milling cutters.***

Specifications of various sizes and types of **Everlock washers** are set forth in tabular form in a booklet recently issued by the manufacturers, Thompson-Bremer & Co., Chicago.*

A bibliography on highway safety compiled by Mildred A. Wilson has been published by the United States Department of Agriculture. Designated as miscellaneous publication No. 296, the booklet includes references to books, articles printed in technical and other periodicals, and publications of societies, which are concerned with matters relative to the subject.

The National Standard Parts Association, Detroit, has issued a brochure entitled "Howdy Friend" which describes the **aims and objectives of N.S.P.A.** and calls particular attention to the broad cooperation possible in this wholesaler-manufacturer association.

The Texas Co. has just published an instructive booklet on **ball and roller bearing lubrication.***

Catalog No. 573 recently released by the Fedder Manufacturing Co., Inc., describes its series four **unit heaters.***

Lake Erie Engineering Corp., Buffalo, N. Y., has issued a new bulletin, No. 138, which gives several examples of the adaptability and economy of **hydraulic presses** for limited as well as larger production in the metal working industry.*

The Caterpillar Tractor Co., Peoria, Ill., has brought out an illustrated booklet on its model D2 **Diesel tractor.***

In a brochure entitled "Twin Engined for Progress," the **Allegheny Ludlum Steel Corp.**, Brackenridge, Pa., supplies answers to these questions: Why did Allegheny and Ludlum merge? Where does the new company stand among steel producers? and What are the plans for the company's future *

* Obtainable from editorial department, AUTOMOTIVE INDUSTRIES. Address Chestnut and 56th Sts., Philadelphia.

Pontiac Pushes Prices Down On 17 Models in '39 Line

Substantial price reductions have been made on the 17 models of the three new lines offered for 1939 by Pontiac Motors division of General Motors. The following are advertised delivered prices at the factory at Pontiac, Mich.:

Model	Quality Six	Deluxe Six	Deluxe Eight
Chassis	$563	$609	$657
Coupe	758	814	862
Sport Coupe	809	865	913
Convertible coupe	No Model	993	1,046
2-door touring sedan	820	871	919
4-door touring sedan	866	922	970

May Assemble Willys In Canada

Plans for the assembly of Willys cars and trucks in Canada are being studied by Willys of Canada, Ltd., Windsor, Ont., according to R. J. Archer, vice-president. The plans for expansion of Willys operations in Canada are said to result from the recent tariff adjustments made by the Dominion Government."

40 Years Ago

with the ancestors of AUTOMOTIVE INDUSTRIES

Variable Speed Gasoline Motors

The gasoline motor is susceptible of variable speed within a wide range, and this variation of speed may be communicated to the vehicle without the use of complicated gearing. This is true of all the well known gasoline vehicle motors on the market today. It is admitted that the economy of the motor is somewhat lessened by this variation in speed, but the item of cost is so slight . . . that it can be disregarded . . . the main desideratum being a gasoline motor which can be controlled very much as a steam engine is. . . . The transmission bugaboo in the gasoline vehicle is a thing of the past. Like most bugaboos it disappeared before honest work and careful thought.

From *The Horseless Age*, October, 1898.

Automotive Metal Markets

Foreign Aluminum Output Activity Increased by War Fever

Specifications coming to steel mills from automobile manufacturers and parts makers are more encouraging than those received in any previous week of this year. Body stock orders are now coming through in a way to permit finishing mills to formulate their production schedules further ahead and more efficiently than has been the case heretofore. Automotive alloy steel orders reflect broader anticipation of needs for late October assemblies. What relatively small amount of business was held up because of the European situation is now coming out. Announcement of impending purchases by Ford Motor Company, pertaining to such descriptions of steel as are not produced at the Ford plants, added to the more cheerful frame of mind of the steel industry. It has always been a Ford policy to distribute orders among as many mills as practical, and with the market as uniform as it is, there is hardly likely to be any deviation from this practice. The routine tonnage represented in the Ford buying program is typical of the conservative character of automotive commitments in general. None of the automotive orders on steel producers' books is for other than nearby assemblies, the prospects of later tonnage business from automobile manufacturers continuing to be the chief prop for the steel market's long range optimism. The rate of employed ingot capacity moved this week another notch nearer to the break-even point, which is thought to lie somewhere between 59 and 60 per cent, the American Iron & Steel Institute's figure for this week being 47.9 per cent, the best record for the year so far.

The sudden turn of affairs in Europe caused only a mild changeover in conditions in the non-ferrous metal markets. When it is recalled that only a few days ago the Dutch government forbade all exports of ores and metals, which would have made impossible shipments from the Arnhem smelter, one of the largest tin smelters of the world, and marine war risk rates were between 1½ and 2 per cent, while this week one-eighth of one per cent was considered high, the narrow price movement of the tin market is surprising. At the height of the war scare, spot Straits tin was quoted at 44½ cents. On Monday of this week the price was down to 43½ cents and on Tuesday it advanced to 43⅝ cents.

The copper market remained entirely unchanged, spot electrolytic continuing to be quoted at 10⅜ cents. The export price was virtually on a parity with the domestic quotation. Ford freighters are bringing copper from the Michigan region to Connecticut fabricating plants, which comes as a reminder that Ford Motor Company is one of the important consumers of Lake copper, mined in the Upper Peninsula of Michigan.

One of the results of the European war fever, which for the time being has now subsided, has been a tremendous increase in many countries of their aluminum and magnesium producing capacity. Germany alone expects to produce 175,000 metric tons of aluminum this year, which would give her about the same output as that of the United States. Poland, Hungary, Jugoslavia and Italy, as well as France and Russia, have on the way projects for adding to their production of the two outstanding light metals.—W. C. H.

Calendar of Coming Events

CONVENTIONS AND MEETINGS

SAE National Aircraft Production Meeting, Los Angeles .....Oct. 13-15
A.S.T.E. Annual Meeting, Pittsburgh, Oct. 14-15
National Metal Exposition, Detroit, Oct. 17-21
American Welding Society Meeting, Detroit .....Oct. 17-21
SAE Annual Dinner, New York....Nov. 14
National Association of Finance Companies, Annual Convention, Chicago, ...Nov. 14-15
SAE National Transportation Engineering Meeting, New York....Nov. 14-16
National Safety Council Meeting, Chicago .....Nov. 14-18
American Petroleum Institute Meeting, Chicago .....Nov. 14-18
National Industrial Traffic League Meeting, New York .....Nov. 17-18
Automotive Service Industries Show, Chicago .....Dec. 5-10
National Standard Parts Association Meeting, Chicago .....Dec. 2-3
SAE Annual Meeting, Detroit.....Jan. 9-13

SHOWS

20th Annual National Metal Exposition, Detroit .....Oct. 17-21
New York, National Motor Truck Show, Nov. 11-17
New York, National Automobile Show, Nov. 11-18
Pittsburgh, Pa., Automobile Show, Nov. 11-18
Detroit, Mich., Automobile Show, Nov. 11-19
Columbus, Ohio, Automobile Show, Nov. 12-18
Buffalo, N. Y., Automobile Show.Nov. 12-19
Chicago, Ill., Automobile Show.Nov. 12-19
Milwaukee, Wis., Automobile Show, Nov. 12-19
Minneapolis, Minn., Automobile Show, Nov. 12-19
*Philadelphia, Pa., Automobile Show, Nov. 12-19
*San Francisco, Calif., Automobile Show .....Nov. 12-19
Boston, Mass., Automobile Show, Nov. 12-19
Los Angeles, Calif., Automobile Show, Nov. 12-20
*St. Louis, Mo., Automobile Show, Nov. 12-20
*Elmira, N. Y., Automobile Show, Nov. 14-19
New Haven, Conn., Automobile Show, Nov. 14-19
Indianapolis, Ind., Automobile Show, Nov. 19-25
Baltimore, Md., Automobile Show, Nov. 19-26
Rochester, N. Y., Automobile Show, Nov. 19-26
Montreal, Canada, Automobile Show, Nov. 19-26
*Washington, D. C., Automobile Show, Nov. 19-26
*Cincinnati, Ohio, Automobile Show, Nov. 20-26
Newark, N. J., Automobile Show, Nov. 26-Dec .3
Kansas City Automobile Show, Nov. 26-Dec. 3
National Motor Show of Canada, Toronto, Ont. .....Nov. 26-Dec. 3
Denver, Colo., Automobile Show, Dec. 5-10
National Motor Boat Show, New York, Jan. 6-14

*Tentative

New Car Sales in Canada Down 21% in August

New motor vehicle sales in Canada during August declined 21 per cent in number and 16 per cent in dollar volume during August, 1938. Sales totaled 7204 vehicles with a retail value of $8,018,020, as against 9074 vehicles sold for $9,521,833 in August last year. The decrease of 13 per cent from July was considerably less than the usual seasonal amount. Sales for the first eight months of this year numbered 92,025, 21 per cent lower than for the same period of 1937, during which 115,998 cars, trucks and buses were sold.

International Harvester Recalls 6,500

International Harvester Co. has summoned 6500 employes back to work in tractor plants in Chicago, Milwaukee and Rock Island, Ill., it was announced on Monday, Oct. 3.

According to the announcement, improved tractor sales in recent weeks reduced the large inventories of finished tractors which caused the company to halt tractor production in July and August. The expanded production schedule is expected by company officials to be maintained well into the spring of 1939.

Front compartment of the Graham with custom treatment.

Graham—

for 1939 has a basic model available in three body styles. A supercharger and custom-equipment give three additional lines.

GRAHAM this year has only a single chassis model but offers the customer an option on two mechanical and custom equipment groups, factory installed at a fixed price. The basic model of the line is the 90-hp. Graham Special, to which may be added a supercharger equipment group, a custom equipment group, or both. Thus while only one series is listed in the literature of the company, the purchaser can get a 90-hp. Special, a 90-hp. Custom Special, a 116-hp. Supercharger, or a 116-hp. Custom Supercharger. The basic model, the Graham Special, is available in a four-door sedan, a two-door sedan, or a combination coupe. Detroit delivered prices are $965 for the four-door sedan and $940 for the two-door sedan and combination coupe. These prices include such items of equipment as built-in trunks, rear-wheel shields, dual sun visors, dual windshield wipers, right and left arm rests front and rear, two assist straps in rear, ash trays front and rear, bumper guards, etc. The four-door sedans are $122 below the comparable 1938 models; the other two body models are new, and a price comparison therefore is impossible.

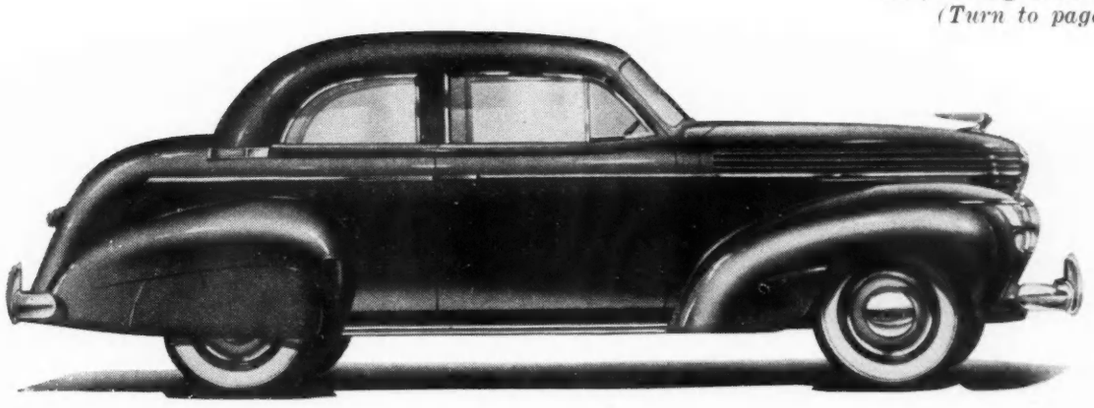
The price to the customer of either the custom-equipment group or the supercharger-equipment group, installed at the factory, is $130. The combination coupe and the two-door sedan, which will be exhibited at the New York, Toronto and Chicago shows, are expected to be available for delivery shortly thereafter. In the coupe there is room for six passengers under the roof. Access to the rear seat is afforded by folding backs of front seats, which swing forward and inward. Trunk space is larger than in the sedan, and additional room for baggage can be provided by removing the rear seat.

Such outstanding appearance features as the forward-leaning radiator, headlamps flush with the leading edge of the fenders, door handles in line with the chrome belt molding, and concealed door hinges, introduced by Graham last year, are retained. Running boards, however, have been replaced by a chrome molding running along the lower edge of the body between fenders. To those who prefer them, full-width running boards are available at extra cost.

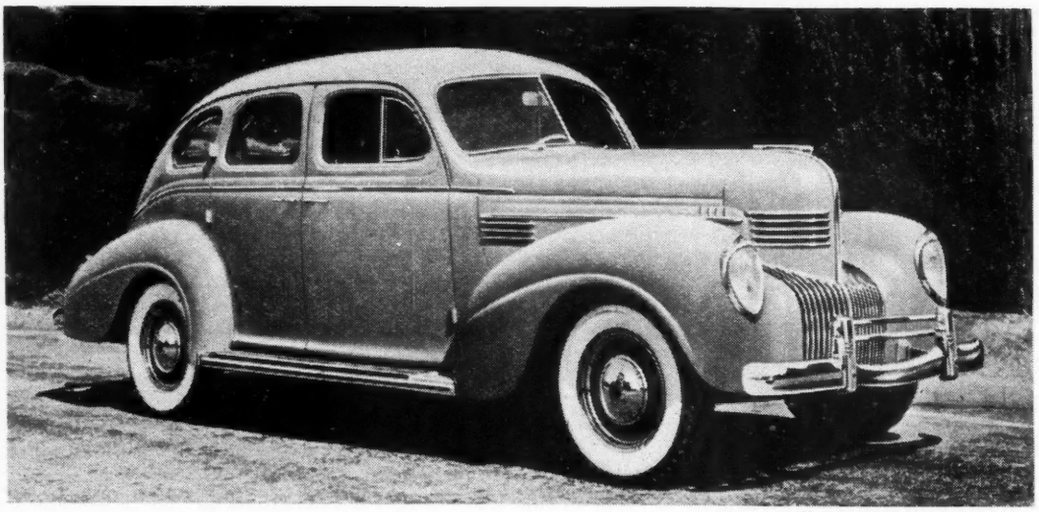
The only other external changes include the removal of the Supercharger nameplate from its former position forward on the belt molding to the rear of the hood below the belt molding, and the provision on Special models of bumpers and bumper guards of different shape.

The radio control is now located below the instrument panel, instead of in the recessed portion with the choke and light buttons, and the plastic treatment around the instrument has been changed. Instrument panels of Custom models will have a solid-color plastic trim and round control knobs, while the Special will have "marbled" plastic flat, oblong knobs. In both models

(Turn to page 450, please)



The combination coupe of the Graham line has a full width rear seat and carries six passengers.



This Chrysler Royal four-door sedan is mounted on a chassis of 119-in. wheelbase.

Chryslers Enter '39 with

INCREASED horsepower, a new transmission, a column-mounted shift lever, thoroughly modern appearance, greater roominess, and many minor refinements feature the Chrysler lines for 1939. Chrysler again offers three lines—the Royal, the Imperial, and the Custom Imperial, with a total of 13 body styles.

The Royal, of 119-in., and the Imperial, of 125-in. wheelbase, come in four body styles, namely, four-door sedan, two-door sedan or brougham, coupe and victoria coupe, the latter seating four persons. The Custom Imperial has a wheelbase of 144 in. and is built in five-passenger sedan, seven-passenger sedan and sedan-limousine body styles. In addition to the standard Royal, Chrysler has introduced a "Royal Windsor" on the same chassis, with two-tone upholstery, refinements in trim and various items of extra equipment. The Royal is available also to those requiring an exceptionally commodious car in a seven passenger sedan and sedan-limousine on a 136-in. chassis. The standard Imperial is supplanted by the "New Yorker," an improved version of the popular 1938 "New York Special," and the "Saratoga," a car designed especially for men and upholstered in leather and Bedford Cord. Both the "New Yorker" and the "Saratoga" include extensive extra equipment. No convertible models are listed.

By increasing the compression ratio from 6.2 to 6.5 and making improvements in the manifolding and in the carburetor, the horsepower of the Royal has been raised to 100. The bore and stroke remain the same, 3⅜ by 4½ in., the piston displacement being 241.5 cu. in. A new eight-cylinder engine of 130 hp. is used in all cars built on the Imperial and Custom Imperial chassis. It has a bore of 3¼, and a stroke of 4⅞ in., making the displacement 323.5 cu. in. This engine has the same cylinder dimensions as those which were used in the 1938 Custom Imperials, but the compression ratio has been increased to 6.8 and the valve design improved. The new engine has a full-length water jacket, a water distributing tube, and a new five-blade fan. On the Imperial a manual spark adjustment has been added, for use when atmospheric conditions or the grade of fuel used change materially.

An improved transmission, known as the "Cruise and Climb," is one of the more important 1939 Chrysler features. It is similar in principle to the overdrive previously used in Chrysler cars, but it cuts in at between 23 and 28 m.p.h., instead of at over 40. A solenoid control makes it possible to cut out the overdrive by pushing the accelerator to the floor. When the pedal is released the overdrive cuts in again. This "Cruise and Climb transmission" is standard equipment on the Custom Imperial and extra on the Royal and Imperial, but it is expected that most buyers will want it, and a large proportion of the production is scheduled to include it.

All moving parts of Chrysler 1939 engines will have the "super-finish" developed by Chrysler's production research engineers under the direction of David A. Wallace, president of the Chrysler division. By this process, surface irregularities can be held down to 0.000002 in., it is claimed, if required for the proper operation of the part. By means of hard abrasives, light pressure, low operating speeds on cold metal, and a multiplicity of short motions, all protuberances are removed and any remaining scratches are below the base-metal line. An "over-center" clutch spring reduces the pedal pressure required for clutch release.

Speedometers on Chrysler 1939 models include a safety feature. They are illuminated whenever the instrument lights are on. Up to 30 m.p.h.—the legal speed limit in many cities—the light shows green. From 30 to 50 m.p.h. it is amber, and at 50 m.p.h. it changes to a brilliant red. This safety speedometer is standard on all models.

Shift levers on all Chrysler models are now column-mounted. The various shifts are made exactly as before, but in a vertical instead of in a horizontal plane. To remove the remaining obstruction from the front compartment, the brake lever was moved to the left side of the driver under the dash. This makes it possible for three persons to ride in the front seat with comfort.

Constant speed electric windshield wipers are now fitted, and the area swept over by the wiper blades has been increased.

Front-end styling is on strictly modern lines. For about half of its length the rounded nose of the radiator shell is set off by horizontal vents protected by chrome bars. This gives way to a cascade of vertical chrome bars projecting several inches from the front of the shell proper and filling the space between the front fenders. A massive bumper with ornamental grille on top contributes its share to the general front-end effect.

Fenders are of new design and have the headlamps built into them. Windshields are of the V type, 4 in. wider and 1¼ in. higher than those of the 1938 models. Running boards have been narrowed, in conformity with the current trend. Trunks have entirely disappeared from all models, which now have concealed luggage compartments and sweeping body rear lines. Tail lamps are streamlined to fit into the rear fenders. The license bracket has been lowered to make room for an emblem in the central upper part of the rear panel. A new synthetic enamel finish is used on all Chrysler cars, which is claimed to be harder and more durable, and to hold its color and luster longer than that used in previous years.

The instrument panel is of new design, in chrome and ivory plastic. Instruments are grouped in an ornamental dial on the extreme left. Next comes the safety speedometer, directly in front of the driver. Control buttons are compactly arranged under the instrument and speedometer dials. In the center is the radio compartment, while on the right there is a large glove box with lock, and steel-covered for theft-protection.

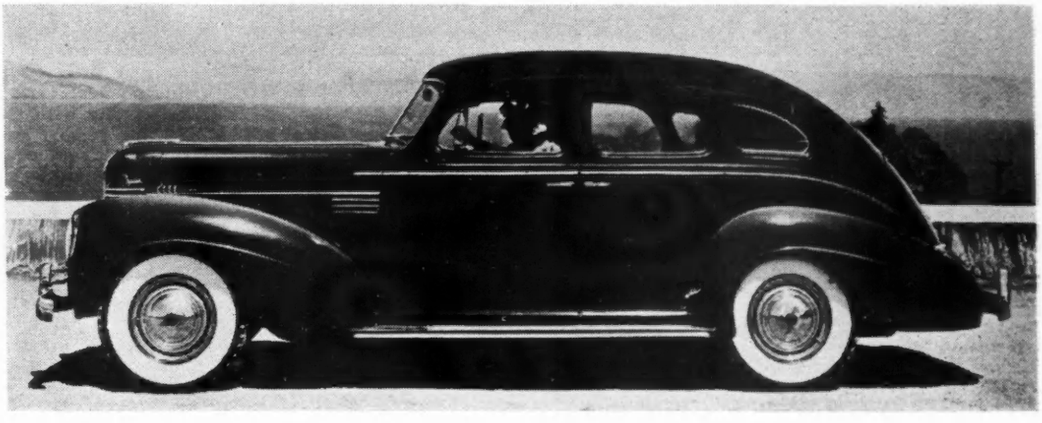
At the "A" post the body is 4 in. wider than last year, and the front seat is now as wide as it was in the Chrysler Airflow, which is said to have set a new standard in this respect. In the rear compartment additional leg room is provided by a foot rest recessed into the back of the front seat. In the standard Royal models the garnish moldings are grained, while in the Imperial models they are painted to match the upholstery. Bodies have a new type of crystal reflector reading lamp.

Spare tires are now carried in a vertical position in the lined and neatly finished luggage compartments, which latter also contain a recessed compartment for the tool bag. A rotary type of door lock, which is said to prevent rattles by maintaining a constant tension, can be locked from the inside by pressing a safety button in such a way that the door cannot be opened from either the inside or the outside until the button is released. This prevents accidental opening of the doors.

Goodyear G 100 tires are standard equipment on all models. These are made with fluted side walls, the front tires having seven and the rear tires four ribs, with an "All-Weather" tread in the center. All Imperial models have 7-in tires as standard equipment. Custom Imperial models are equipped with the Goodyear Life-Guard, a special reserve tire within the regular tire, which takes over the load in case the regular tire fails, permitting of bringing the car to a stop without lurch.

More Power and Improved Bodies

The rear of the Royal has been smoothed out and the tail lights have been relocated.



The Chrysler Imperial has a 125-in. wheelbase and powerplant rated at 130 hp.

Hydraulic Transmission

As announced in a recent issue of AUTOMOTIVE INDUSTRIES, the Yellow Truck & Coach Manufacturing Co. has adopted hydraulic transmission for its coaches. This transmission, we learn, has been developed during a number of years in collaboration with the Spicer Manufacturing Co. A number of illustrations of the new transmission are shown herewith.

The hydraulic transmission is contained in a housing bolted to the rear of the crankcase. This housing contains the following units, starting at the engine end:

1. A single-action friction clutch which connects the engine to or disconnects it from the hydraulic system.

2. The hydraulic system, which includes the pump wheel, the rotor, and the turbine housing with its two sets of reaction blades.

3. The reverse gear.

4. The roller clutch, which disconnects the hydraulic system from the angle-gear output shaft when in direct drive.

5. The direct-drive lockup or clutch, which connects the through shaft to the angle gears.

6. The angle gearing.

Fig. 1 shows what takes place

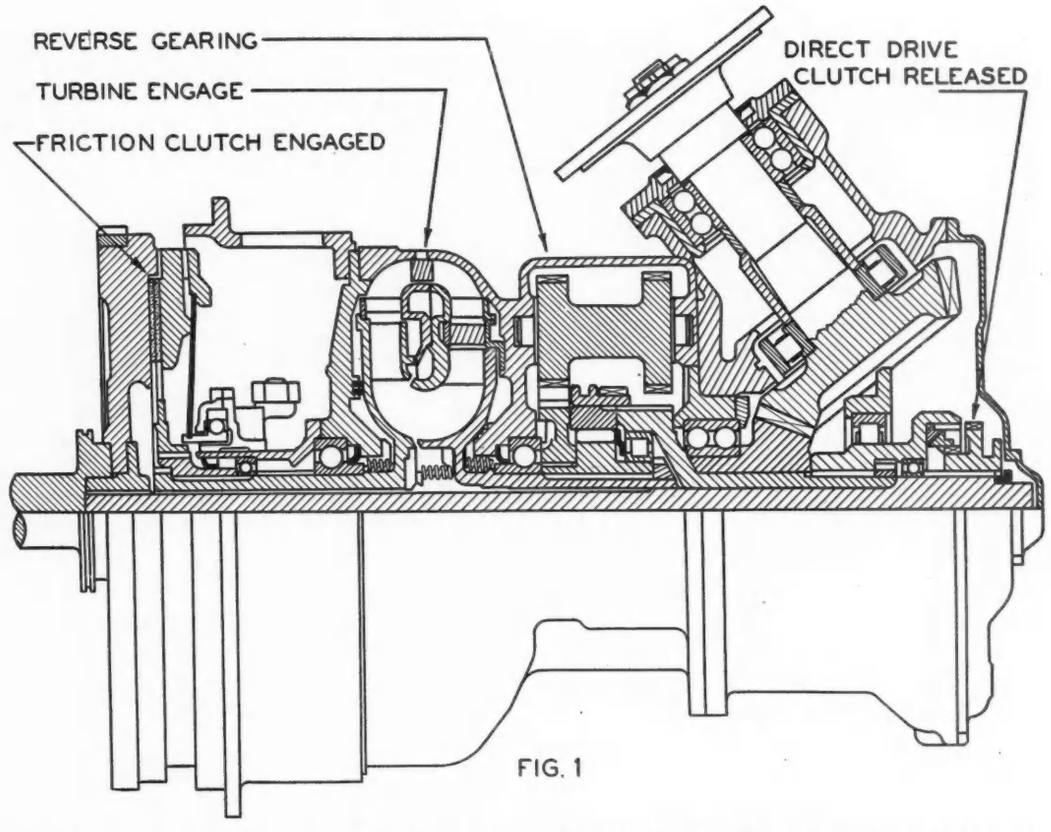


Fig. 1—Plan view of Yellow-Coach hydraulic transmission, partly in section

Fig. 2—Clutch-spring plate and release bearing

Fig. 3—Sectional view of direct-drive clutch

Fig. 4—Direct-drive clutch disassembled

Fig. 5—Section through turbine (left) and diagram of fluid circulation (right)

Fig. 6—Pump wheel (left), rotor wheel (center) and casing with stationary blades (right)

Fig. 7—Turbine blades

Fig. 8—Diagram of hydraulic circuits

Basic design of the Yellow Coach hydraulic transmission—excluding the clutch, controls, reverse and angle gears—originated in Sweden. Licenses under the Swedish patents have been issued in various countries, including one to the Spicer Mfg. Corp. in the United States. In Sweden, hydraulic transmissions have been used for many years in rail cars and in other heavy-duty service. The basic mechanism is generally known as the Lysholm-Smith, but has been described variously as the Ljungstrom, as a torque converter, a hydraulic transmission, a fluid transmission, a gearless transmission, etc.

for Yellow Coach

embodies a direct drive and can be used also as a dynamometer to check the condition of the engine

when the hydraulic system is in operation. The power flows from the engine through the engaged friction clutch into the hydraulic system, where the torque is multiplied and the speed reduced. The turbine output shaft is connected to the angle gears through a roller clutch, the direct-drive clutch being released.

Direct drive is engaged automatically when sufficient road speed has been attained. Power is then transmitted directly through the center shaft to the angle-drive gears. The pump wheel is disconnected from the engine, and the roller clutch permits

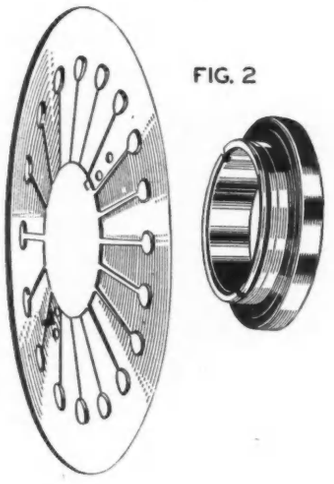


FIG. 2

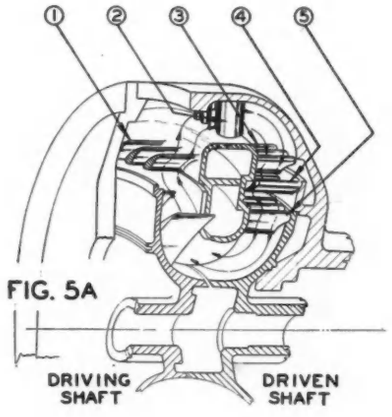


FIG. 5A

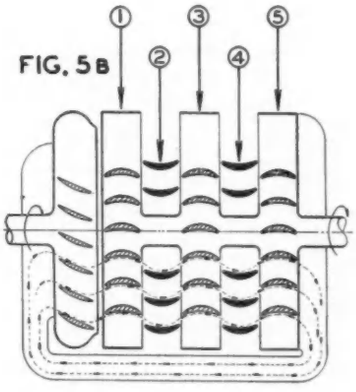


FIG. 5B

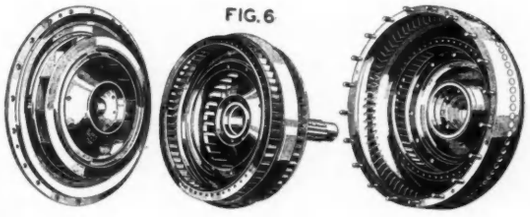


FIG. 6

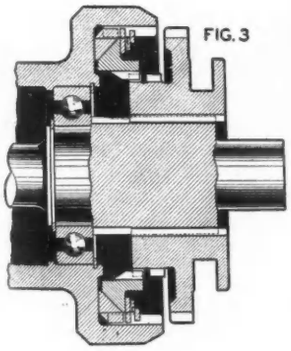


FIG. 3

FIG. 7

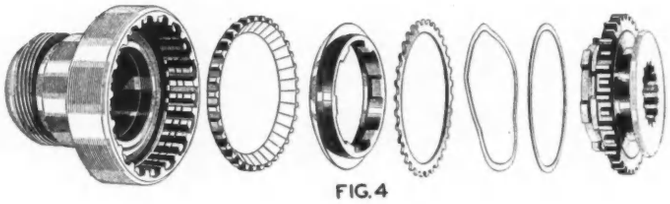


FIG. 4

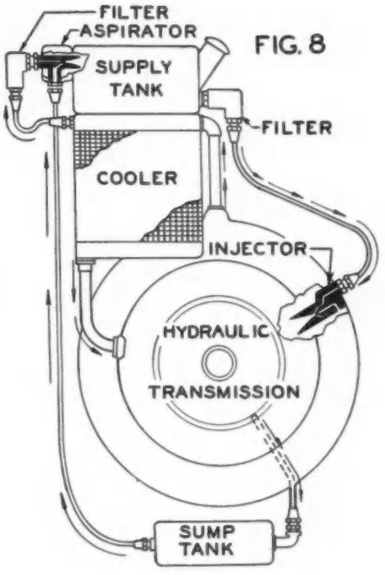


FIG. 8

the turbine unit to come to rest, which eliminates losses due to churning of the fluid. From Fig. 1 it will also be seen that when the coach is being driven in reverse, the power flows through the friction clutch and turbine, and that rotation is reversed in the gearing between the turbine and the angle gears.

The friction clutch, which engages the turbine element, is of the disk-spring type, in which the pressure is uniformly distributed over the entire frictional area. Contrary to conventional practice in the design of clutch-release bearings, the housing and outer race are stationary, and the inner race revolves. With this design there is no tendency to throw off the lubricant. Fig. 2 shows the conical steel-spring plate and the release bearing.

Balking Ring Aids Direct Drive

Engagement of the direct drive is assisted by a "balking ring" placed between two sets of dogs. This ring permits engagement in one position only, and it can rotate several degrees to both sides of this position. As long as there is a speed difference, the ring is positively held in either extreme position by means of a friction device, and engagement is prevented. The moment synchronization occurs, the ring rocks and engagement follows automatically. Fig. 3 is a section through the direct-drive clutch, and Fig. 4 shows the actual parts of the clutch.

The hydraulic system, which is based on the Föttinger principle, incorporates a pump impeller, a rotor, and a fixed reaction member through which the fluid is circulated, all of these members being co-axial. Fig. 5 shows the path of the fluid and the operation of the hydraulic system. The turbine element consists of a centrifugal pump wheel driven by the engine, a three-stage rotor wheel with three sets of blades, 1, 3, and 5, connected to the propeller shaft; and a casing with stationary blades, 2 and 4, interposed between the rotor blades. The engine-driven pump wheel forces fluid against the rotor blades, 1, exerting a thrust tending to rotate the wheel. The fluid then passes the stationary blades, 2, which direct it against the rotor blades, 3. The stationary blades, 4, again change the flow of the fluid, directing it against the rotor blades, 5. The fluid is then picked up by the pump wheel and the cycle repeated. Torque multiplication reaches a miximum of 5:1 when the coach is being started, and the ratio is gradually reduced as the vehicle gains speed.

Fig. 6 shows the pump wheel, rotor wheel, and casing with stationary blades. One reaction stage is formed by riveting the blades directly into the casing, while the other is in the form of an independent ring that is secured to the casing. Shafts of the pump and turbine, together with their end plates, are machined from steel forgings. Blades of the pump and the third stage in the turbine are made from rolled steel sections, as these blades form the chief mechanical coupling to their respective shafts. The remaining turbine and reaction blades are made from extruded brass sections and are fastened by integral dowels. All of the blades are riveted in position. Fig. 7 shows the various types of blading, five in all.

The hydraulic system can be used as a dynamometer to check the condition of the engine. To this end, the brakes are set or the wheels blocked, the throttle is opened fully, and the engine speed is noted, for which latter purpose a tachometer is provided. If under these conditions the engine speed is below the standard peaking speed, repairs or adjustments are required.

Fig. 8 shows the fluid system. Fluid enters the turbine from the supply tank through an injector or booster. This latter functions on the injection principle and is operated by fluid that is by-passed from a region of high to one of low pressure. The fluid thus builds up pressure, which tends to prevent foaming and cavitation, thereby raising the efficiency. Fluid is allowed to escape from the high-pressure side of the turbine, and carries off any gas that may form. An aspirator sucks fluid from the sump tank underneath the transmission and delivers it to the supply tank. The sump tank collects the fluid which finds its way past the turbine seals, which is thus recirculated. A small cooler is provided to prevent overheating of the fluid when the hydraulic system is used for prolonged periods. The fluid leaves the turbine on the high-pressure side and returns to it from the cooler on the low-pressure side. The fluid consists of a mixture of 95 per cent kerosene and 5 per cent lubricating oil, and the supply required amounts to 5¼ gals.

The split outer member of the roller clutch is surrounded by an internally- and externally-toothed ring. In the "forward" position the ring locks the roller clutch; to engage the reverse, the ring is moved sideways. This disengages the roller clutch and engages the reverse gearing. Reverse drive also is through the turbine, which insures immunity from shock while backing.

The angular gearing connects the transmission to the rear axle through the propeller shaft. Its advantage is that for a given rear overhang it gives a maximum length of propeller shaft. The design of the angular gearing, bearings, etc., follows conventional Yellow-Coach practice. While there is considerable latitude as regards the angular relations, high angles generally facilitate the design of the gears where the object is maximum strength.

Control of the transmission is entirely automatic. When he desires more speed, the driver depresses the accelerator; to reduce speed he eases up on the pedal. An important advantage is claimed to be that engagement and disengagement of the direct drive takes place automatically *at the correct road speed.* The controls are of the electro-magnetic type. A speed-sensitive governor actuates a valve which admits air to, or releases it from, the control cylinders and momentarily closes the engine throttle, whereupon engagement of either the hydraulic or the direct drive results automatically. Whatever may happen to the controls, the vehicle can always be operated through the hydraulic drive.

Advantages of Hydraulic System

Tests conducted on General Motors Proving Grounds are said to have shown that the efficiency of the hydraulic system compares favorably with that of any of the competing systems, including the clash-gear, the constant-mesh, the synchromesh, and the semi-automatic systems.

Among the advantages of this type of transmission, specifically in coach operation, may be mentioned smooth starts, which eliminate upsetting "standees"; simplified control, resulting in a lessening of driver fatigue; noiseless operation of the hydraulic transmission, speed-governing characteristics of the turbine, which prevent racing of the engine with the turbine engaged; practical elimination of wear on clutch linings, since engagement takes place under conditions of no load; absence of oil churning when in direct drive; automatic damping of propeller-shaft vibration, which is of particular importance in connection with Diesel engines, and the possibility of using the turbine as a dynamometer for periodic check-ups on engine condition.

Is the Automobile Finance Company Doomed?

By MILAN V. AYRES*

IN its issue of July 9, AUTOMOTIVE INDUSTRIES printed a brilliantly written article by Arthur Fertig, which predicted a gloomy future for the automobile business, and a still gloomier future for automobile finance companies, ending with their complete extinction and the taking over of the financing function by the manufacturers. He also placed the blame for a large part of our present economic difficulties upon installment selling.

The article cites very few definite statistics, but makes reference to many alleged facts, which the reader naturally assumes to be based upon statistical evidence. This manner of writing has its advantages for both the author and the reader. It saves the author a good deal of work and makes the article easier to read, but it involves the danger of basing important conclusions upon false impressions.

Mr. Fertig says, "An approximate 20 per cent is too high a proportion of the national income to be spent for individual transportation." That of course is just an expression of opinion, but it may be right. What I want to know is, where did he get that 20 per cent? I think I know. The Census of Retail Distribution for 1935 reveals that the total sales of automobile dealers, accessory, tire and battery dealers, garages and the like, including filling stations, constituting the "automotive group", amounted to 19.8 per cent of all retail sales, but that is not at all the same thing as amounting to 20 per cent of the national income. As a matter of fact, these sales amounted to less than 12 per cent of the national income. Sales of automobiles, gasoline, accessories and the like increased from 1935 to 1937, but the national income increased even more. The best estimate I can make is that the retail sales of "the automotive group" of retail establishments in 1937 amounted to very nearly 10 per cent of the national income. Mr. Fertig says that 20 per cent is too great. Would he also say that 10 per cent is too great?

Mr. Fertig says "The sources of credit are no longer confined to a few large finance houses. There are now in the neighborhood of 1500 finance companies, and competing with these smaller institutions are countless banks which have entered the field with little fanfare." The point of that statement is the implication that the sources of credit for installment selling were formerly confined to a few large finance houses, and that there has been a recent great expansion in their number. That is not true. In January, 1927, Wilbur C. Plummer had an article in The Annals of the American Academy of Political and Social Science entitled "Social and Economic Consequences of Buying on the Installment Plan." He states "The estimates of the number (of finance companies) at the present time range from 800 to 1700, with more than 1000 being a common estimate."

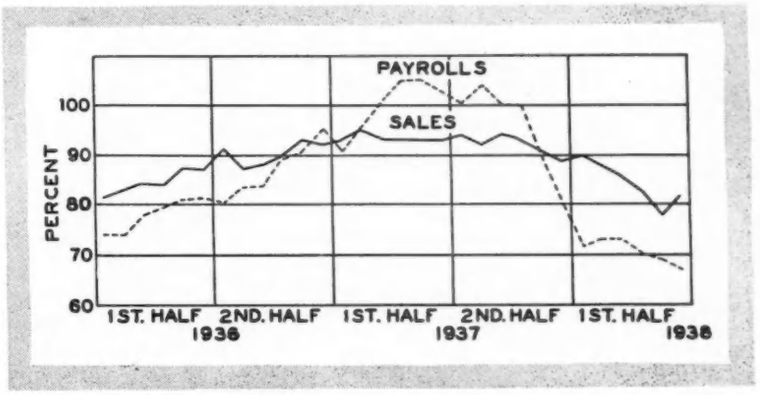
This is in fair agreement with the records of the National Association of Sales Finance Companies. In 1928 we had 1297 supposed sales finance companies on our mailing list, and verified the fact that 1010 of them were in the business of buying installment paper. The other 287 did not reply to our questionnaire. Ever since then we have had somewhat over 1000 on our list, the present number being 1045. Apparently the number has been very nearly constant during the past decade. At any rate it is certain that there has been no recent substantial increase in their number.

It is true that in the past few years many banks and some small loan companies have gone into the business of financing automobile sales, and have gotten some business away from the finance companies. In that way the "sources of credit" have been increased in number, but there is no evidence that the number of installment sales of automobiles has been increased thereby.

The sources of credit for installment selling never were confined to a few large finance companies. In fact, before there were any such companies at all, there were thousands of merchants, just as there are today, selling goods on the installment plan, and depending on their own resources, supplemented perhaps by bank borrowings, to carry the resulting receivables.

Referring to the same "sources of credit" he says "All these agencies are in competition to put their funds to work, and so apply additional pressure upon the consumer." He

(Turn to page 447, please)



Composite payroll index compared with department store sales (Adjusted index)

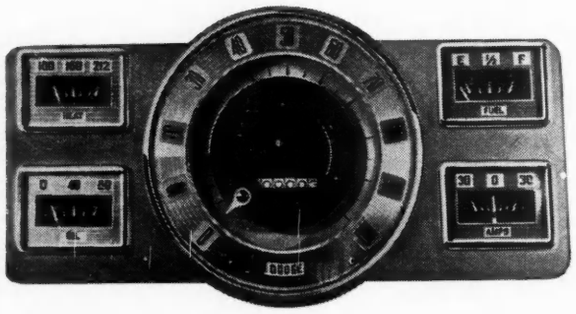
* Secretary and analyst, National Association of Sales Finance Companies, Chicago.

Newly Styled Dodge

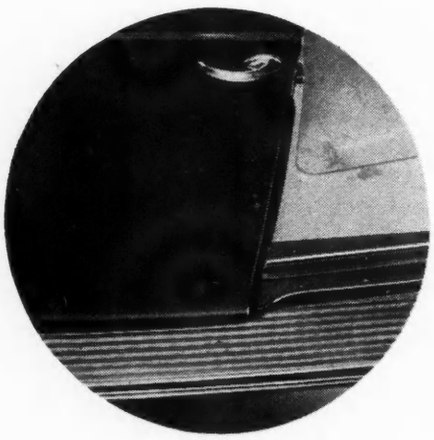
THE new Dodge, termed the Luxury Liner, is a car of longer wheelbase and wider body, with greater visibility, and finished in a new enamel in a wide variety of optional colors. It has a new frame with 6-in. side rails and a specially rigid front end to accommodate the Amola-steel coil springs of the independent front suspension with which this year's car is equipped. With the increase in wheelbase the rear seats have moved ahead of the rear axle, which tends toward a softer, smoother ride. At the lower forward end of the car, the catwalk, transverse ventilating slots or louvers are outlined by polished chromium strips. Lengthwise slots in the tapering bow are separated by a broad chromium band curving upward toward the radiator ornament.

In connection with the independent front suspension, a cross-steering linkage has been developed, comprising a Y-shaped steering arm moving in a horizontal plane. A worm-and-roller steering gear is employed, and the steering ratio has been increased from 14.6 to 18.2, which, together with other changes is said to have reduced the steering effort required by 28 per cent.

Rear springs are of the leaf type and also of Amola steel. These springs are built up of thin leaves and are said to be squeakless. Four double-acting hydraulic shock absorbers of the direct-acting type serve to damp spring motion. Webs of the road wheels have four instead of three openings for chain straps, and are of heavier section. Hub caps are of new design and incorporate a variant of the Dodge Rocky Mountain-ram trade mark. The tires have specially ribbed side walls and widened treads, with seven grooves on the fronts and a non-skid pattern on the rears.



The "Safety Light" takes the form of a bead which in moving over the dial shows green at speeds up to 30 m.p.h., amber from 30 to 50 and red at speeds exceeding 50.



The doors are flared at the bottom so as to streamline the running boards when the doors are closed.

The new V-type windshield is mounted between slenderized corner posts; it is wider and higher, and contains 23 per cent more glass area. Electric windshield wipers are standard equipment; they have longer wiper arms and, of course, operate at a speed which is independent of the conditions of engine operation.

Upper hinges of the front doors are completely concealed, which adds to the smoothness of the exterior. At the lower edge of the doors there is a flare which when the doors are closed has the effect of reducing the apparent width of the running boards. This flare acts as an additional weather seal, while when the doors are opened it uncovers the full width of the rubber-sheathed running boards, thus affording a safe step for ingress and egress. Doors are equipped with a new style of rotary, self-tightening lock. Supplementary, button-operated door locks are mounted in the window sills. When the buttons are pushed down the doors are locked both inside and out.

Headlamps are recessed into the forward curves of the front fenders, flush with the surface. This new arrangement places the driving lights 13 in. farther apart, and results in the entire width of the road being illuminated; they are also closer to the ground, which is claimed to make for better illumination in hazy weather. A passing beam, which tilts downward and toward the right shoulder of the road, can be made to replace the straight-ahead driving beam by means of a foot-operated switch. Tail lamps are set flush into the fenders.

Only the top section of the hood lifts, the sides being stationary. Hood covers are provided with automatic stays, one on each side, which hold the lifted hood in position during service operations. Dodge bodies are carried on the chassis frame on mounting pads of live rubber, 14 in number.

The hydraulic brakes have been improved by relocating the cooling ribs and redesigning the brake drums to give a better "feel."

Line is Longer and Wider

Autothermic pistons have been adopted by Dodge, which are lighter and also carry lighter piston pins. This reduces the loads on main and connecting-rod bearings. These pistons are tin-plated and are fitted to a close clearance. Two of the four piston rings, the compression rings, have their surfaces treated to prevent scoring.

The 1939 Dodge, the same as its predecessor, carries a six-cylinder engine of 3¼-in. bore by 4⅜-in. stroke (217.8 cu. in.) which is rated 87 hp., with a compression ratio of 6.5. It has the familiar Chrysler "floating-power" mounting, in which a number of improvements have been made. Other new features of the powerplant are the manifold riser, the downdraft carburetor connected to a double-unit air cleaner and intake silencer, and self-locking tappet screws. Inserts of alloy steel are used for the exhaust valves. Automatic features of the powerplant include the engine choke, spark advance, heat control, and control of cooling-water circulation.

The clutch is now provided with an over-center spring, which reduces the pedal pressure required.

Front seats have a wider range of adjustment than in the past, and tilt upward as they move toward the instrument panel. A new feature of equipment this year is the "safety" speedometer. Its indicating member consists of a small bead moving over an illuminated dial. At speeds up to 30 m.p.h. the color of the tell-tale bead is green; at speeds of 30 to 50 m.p.h. it is amber, while when 50 m.p.h. is passed the bead turns red.

At the center of the instrument panel there is a removable section for accommodating a radio receiver with automatic tuning. The glove compartment at the right of the panel is larger than formerly and its walls are of a special reinforced material. Other items on the instrument panel include a small headlight annunciator light, a push-button lock for the glove compartment, and an ash tray on the top ledge.

Driving compartments have been entirely cleared of obstructions, by mounting the shift lever on the steering column and the pistol-grip-type brake lever on the dash to the left of the driver.

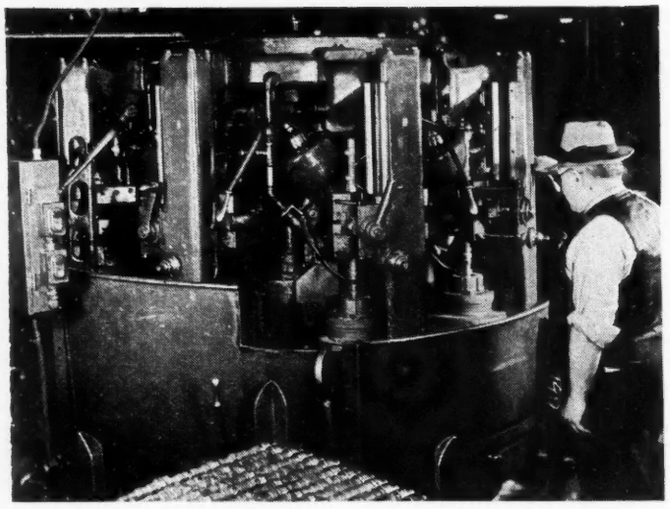
All transmission and final-drive gears are of Amola steel, and the final drive is through hypoid gears.

A larger (18-gal.) gasoline tank is carried, made of two sections of drawn steel which are welded together instead of being soldered. The carburetor is said to be new and larger, and fuel feed is by a mechanical pump.

The Luxury Liner comes in three body styles—four-door sedan, two-door sedan, and coupe. The Luxury Liner deluxe series comes in four body styles—four-door sedan, two-door sedan, coupe, and coupe-for-four.

The front of the new Dodge line has a complete new treatment with the headlights 13 inches farther apart than on previous models.

The body of this four-door Luxury Liner is of new design. Front corner posts are narrow and vision is improved.



Plymouth camshafts acquire a complete set of gear teeth while moving once around the circuit in this gear hobber. This assures uniformity, since each cutter spindle is pressed against the metal by the same master cam and handles eight camshafts at once

Production Lines

Poses Problem

Every once in a while advancement in one field of engineering seems to outstrip a related activity. Motor car engineers have found such a problem right now. Availability of improved piston rings and pistons, as featured on '39 engines, reduces oil consumption appreciably. And now it is found that if the lubricant in the cylinder bores is retained so well there arises a new problem of oxidation which coats pistons and rings with a hard mass of varnish. Not all engines nor many oils are subject to this oxidation phenomenon, but the situation seems to call for immediate attention. As the problem appears at the moment, there are two courses open—either to assure availability of lubes free from oxidation or to retrogress in design progress and permit higher specific oil consumption. Here is a neat problem calling for close cooperation between engine designers and petroleum technologists.

Centrifugal Casting

When a process has merit, it eventually makes the grade in a big way. Some time ago we published an article describing the application of centrifugal casting in the manufacture of steel cluster gears and blanks for transmission gears at Ford. Just the other day we learned that one of the prominent car builders will be producing a unique brake drum, using a battery of centrifugal casting machines now being built.

Surface Broach

We have said before that surface broaching has found its place as an important metal cutting process. During the past month we have noted evidence that more and more really outstanding applications will be found in 1939 production. Buick, particularly, should have much to boast about.

Digests Line

One of the most comprehensive engineering bulletins we have seen in a long time is the Clark Engineering Index, just off the press. Here in very convenient form the Clark organization has succeeded in providing complete engineering details and specifications data on its entire line of axles, transmissions, wheels, axle housings, and special items. To us, this handbook appears indispensable to engineers, specifications departments, and large fleet operators. It comes in handy loose-leaf form, making it rather easy to keep the material up-to-date. Each of the books is earmarked and numbered—ours is No. 341—a limited number still available for distribution where they can do some good.

Standardized Die Sets Prove Their Economy

The die set, as it is known today, came into being after 1920. As a matter of fact, it was as late as 1922 before several outstanding manufacturers placed standardized die sets on the market at a price that made it uneconomical for users to make such equipment themselves. Today the Danly organization builds interchangeable die sets which make it perfectly feasible to change die or punch holders as needed or to use several punch holders with the same die holder. Bushings and pins are hardened and ground to basic limits that make interchangeability a routine matter. Not only are the pins hardened and ground, but as a final operation—the pins are lapped, the bushing honed. And finally, after assembly in the die set, the bushing holes are again honed.

Grinding, lapping and honing equipment is of the most modern type, similar to the machinery used in motor-vehicle parts production.

Such die sets are made today in sizes ranging from watch parts to enormous equipment weighing upwards of 40 tons, featuring guide post construction. Quality control is exercised on all parts as well as on the finished assembly.

This huge die set, recently shipped to a prominent automotive manufacturer, is being milled on a No. 350 Giddings & Lewis machine. (Opposite page)

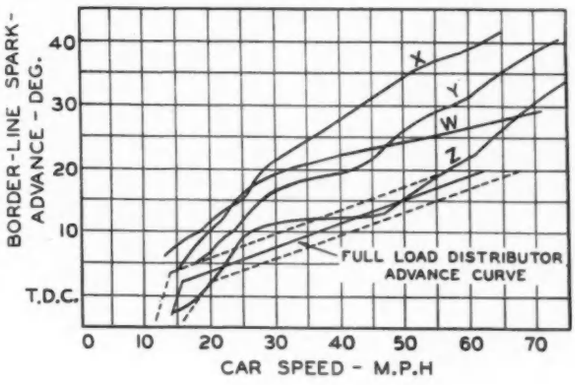
Tubed Frame

We gather on good authority that a certain organization has developed a taxicab body design utilizing a tubular structure. Apparently under the surface there is progress in the adoption of welded structures featuring steel tubes.

Plugs In

We hear that a new device is breaking all records in covering the fields where load lifting is a problem. We have in mind a line of light weight, portable electric hoists that can be plugged in into any outlet or lamp socket. Chain hoist jobs are said to be duck soup for it. It comes in four capacities up to 2000 pounds. Sounds right handy for machine shops, repair shops, assembly department. Ask us for more details.—J.G.

Determining the Limitation of Spark Advance



Borderline-knock spark advance vs. car speed for three commercial gasolines and an experimental fuel W, together wi h full-load distributor-advance curve.

A METHOD which permits determination of the limiting of spark advance or the borderline spark advance with greater speed and precision than has been possible in the past, was described in a paper at the S.A.E. Summer Meeting by W. E. Drinkard and J. B. Macauley, Jr., of the Chrysler Corporation. The apparatus required includes:

1. A manually controlled distributor, together with a mechanism for controlling it from the driver's seat. This can readily be made from a standard distributor by removing the governor weights, locking the cam to the distributor shaft, and disconnecting the vacuum line from the engine.

2. A spark-advance indicator of the type described by McGregor or that described by Oldberg. The authors used the last-mentioned with some slight modifications.

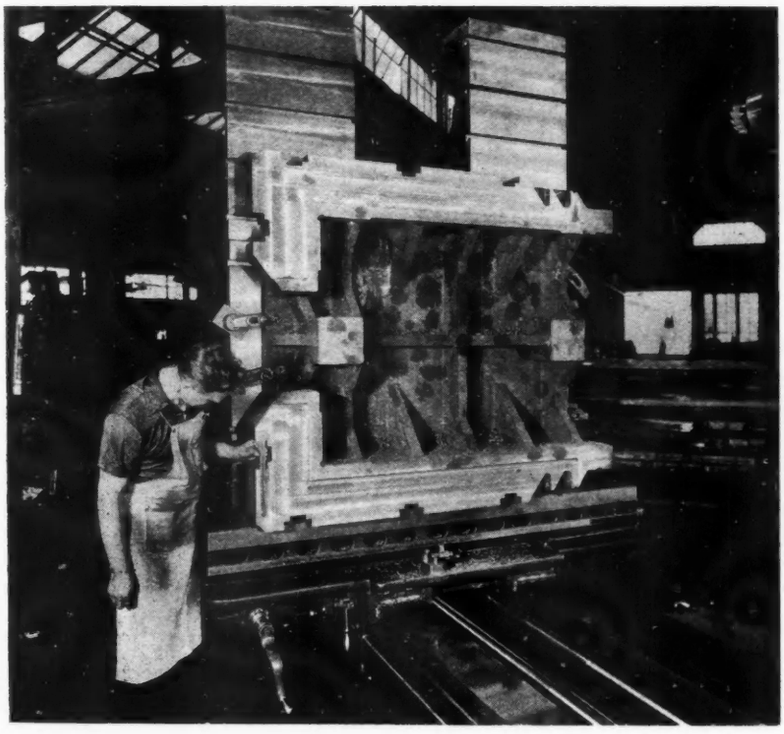
3. Thermocouples installed indicate operating temperatures.

4. It is advisable to use a car-speed-indicating means that is more accurate and more dead-beat than the car speedometer, and the use of a fifth-wheel electric tachometer is recommended.

A driver and an observer constitute the test crew. In making a test, the car is accelerated in high gear from approximately 10 m.p.h. and the speed and spark advance at which audible knock disappears are noted. This locates one point on the curve. The spark advance is then altered by about 2 deg., and the acceleration is repeated to locate another point. This procedure is repeated until enough points are located to complete the curve. Several accelerations are usually made at each spark setting, for the sake of accuracy. The driver calls the speed at the point of knock die-out, and the observer records the spark advance at the same point. This double check on the point of knock disappearance very rarely leads to a disagreement between the observers of more than 2 m.p.h., and usually the agreement is exact. Operating temperatures are recorded at appropriate intervals. With the instrumentation used, and a level course fairly free from traffic, data on one fuel can be obtained in about 15 min. A fuel supply of 1 gal. usually suffices for an adequate test in one of the smaller cars.

When accelerating with a large, fixed spark advance, the low-speed

(Turn to page 450, please)



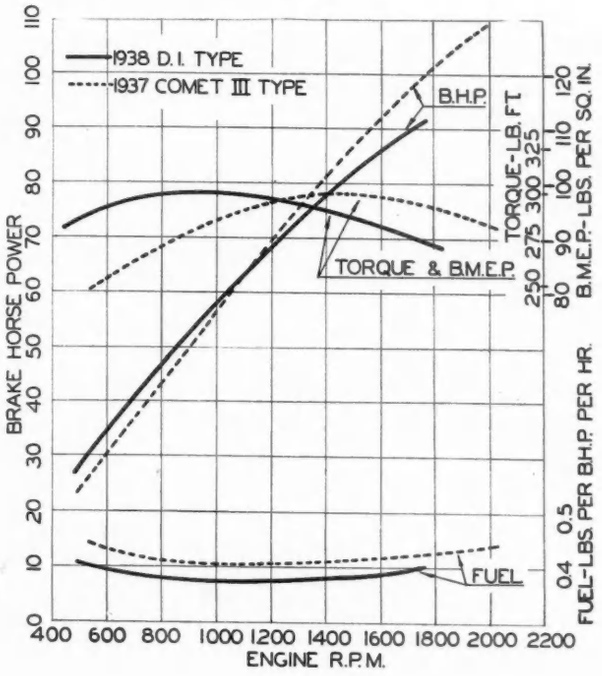
A.E.C. Adopts Direct-Injection Diesel

By M. W. Bourdon

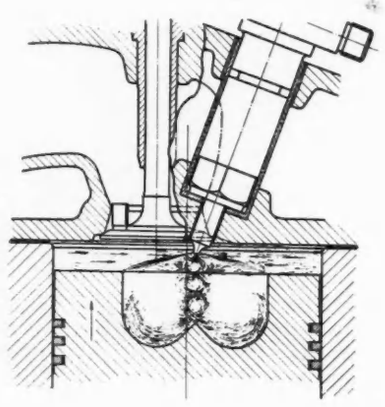
ONE of the pioneers in England of the Diesel engine for buses and trucks, the Associated Equipment Company, manufacturer of London's buses, has introduced a direct-injection type of engine as an alternative to the Ricardo Comet type upon which, in its various stages of development, the company has specialized since 1930.

The new engine is a six-cylinder of 4⅛ by 5 7/16 in. bore and stroke (470 cu. in.) and develops 90 b.h.p. at 1750 r.p.m. It is identical with the Comet engine (which develops 110 b.h.p. at 2000 r.p.m.) in all respects other than the piston, cylinder head, valve gear, fuel pump and injectors, so that operators desiring to do so can convert one type of engine to the other.

A large number of these A.E.C. direct-injection engines have been in experimental operation in fleet service for some time. This new engine is being put forward for use where fuel consumption is a matter of primary importance and where—since the new unit develops somewhat less power than the old—vehicles are not operated in particularly hilly districts.


1938 D.I. TYPE
1937 COMET III TYPE
B.H.P.
TORQUE & B.M.E.P.
FUEL
BRAKE HORSE POWER
TORQUE-LB. FT.
B.M.E.P.-LBS. PER SQ. IN.
FUEL-LBS. PER B.H.P. PER HR.
ENGINE R.P.M.
0 10 20 30 40 50 60 70 80 90 100 110
250 275 300 325 80 90 100 110 120
0.4 0.5
400 600 800 1000 1200 1400 1600 1800 2000 2200

Comparative performance curves of the A.E.C. 6-cyl. direct-injection Diesel

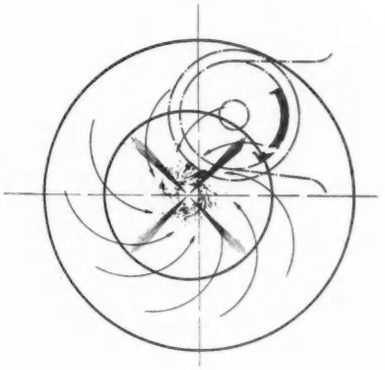


Cross section through the combustion chamber showing how distribution of the fuel is effected by the whirlwind movement of the air.

It is claimed that as a result of research a form of combustion chamber has been evolved that secures unusual fuel economy even for a direct-injection engine. As indicated by the sectional view herewith, the whole of the air charge is compressed in a peculiarly shaped cavity in the piston. Its effect is explained as follows:

To assist in the thorough mixing of the charge a masked inlet valve is used, which produces a rotary movement of the ingoing air. As the piston nears the end of the compression stroke, air is forced violently towards the center of the cylinder, cutting through the four fuel sprays and continuing down into the piston cavity with a whirlpool motion. The stream diverges at the base of the cavity, following the specially shaped walls to emerge into the main cylinder as combustion is completed and the piston descends on its power stroke.

This controlled turbulence is claimed to produce a very high combustion efficiency, a smoke-free exhaust, and an improvement of about 10 per cent in fuel economy over the Comet type. This claim has evidence in the accompanying performance curves, showing the characteristics of the new and the old engines. A point of interest is that the position of the peak of the torque curve occurs at a lower speed in the direct injection engine, while the consumption curve is lowered to a minimum of 0.375 lb. per b.h.p. at 1050 r.p.m.



Plan view of combustion chamber showing the rotary and radial movement of the air

Is the Automobile Finance Company Doomed?

(Continued from page 441)

does not explain by what means they apply additional pressure upon the consumer. As a matter of fact, a great majority of them do not even attempt to do so. They simply compete among themselves for a share of the financing business which is created through the installment selling by merchants.

Financial history of the recent depression years has amply proved that the making available of large amounts of credit is not necessarily accompanied or followed by the use of that credit. That has been conspicuously true of commercial bank credit, and it is just as true of credit offered for financing installment sales.

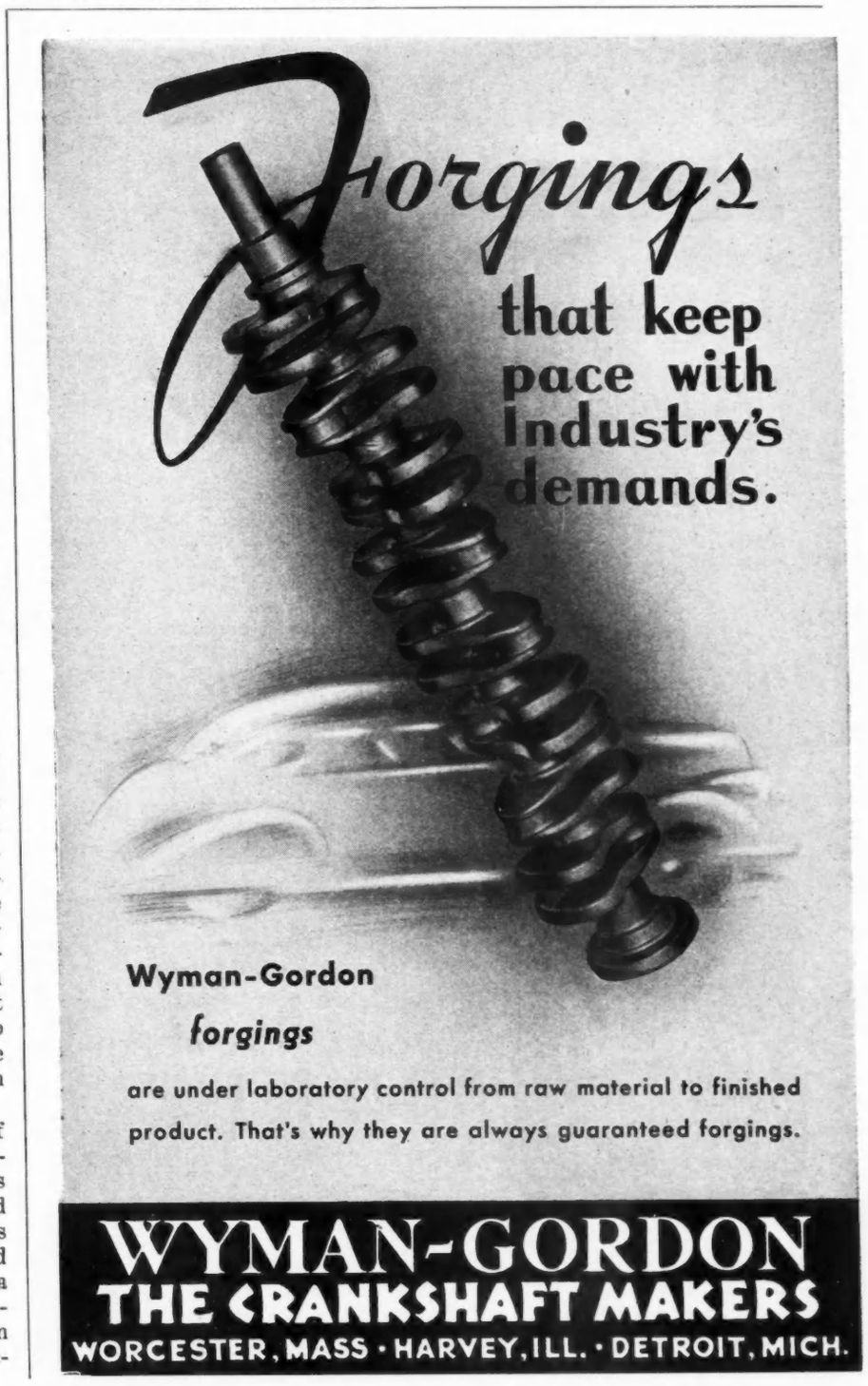
Really the whole fabric of Mr. Fertig's argument is built upon the assumption that recent great changes have taken place in installment selling, of a kind which have caused some of the evils of the present and justify his gloomy outlook on the future. One of these changes is "increase in the variety and volume of goods sold on the installment plan." He says these "now cover a substantial number of all consumer wants," and lists them. There is nothing in his list that has not been sold on installments for at least ten years. In fact they have all been so sold for the past fifty years, except those that were unknown so far back.

The fact is that the practice of installment selling has not been extended in recent years to cover any new class of goods whatever, except newly developed goods like radios and stokers, which were not available before on any terms. Furthermore there is practically no evidence that the percentage sold on installments of any type of goods has materially increased in the past ten years, except for jewelry and "soft goods". The increases in these two items have been too trivial in volume to be of the slightest importance in the economic picture.

The most outstanding feature of Mr. Fertig's paper is the proposition that installment selling has speeded up the business cycle and intensified the depressions. He says "A quickened cycle of feast and famine years is upon us, not as a passing phase, but as a chronic condition, and the crux of the situation is installment selling as now practised. Certainly there will be another big year, but it will be followed by two or three years of scant output." Let us look at the record. We have just come through one of the longest depressions on record, followed by a new slump before recovery was complete. Does that look like a "quickened cycle of feast and famine?" It looks to me more like a slowing down of the business cycle, accompanied by an enfeebled ability to make normal recovery.

He says, "Credit selling was one of the principal factors in creating the prosperity of the first six months of 1937. It was also largely instrumental in bringing on the recession which followed. Operating data of retail stores show that the consumer, by and large, became oversold by the middle of the year, and from that time on was too heavily obligated to continue purchasing, especially in the face of rising prices."

That is really the clincher in his



argument that installment selling was the principal cause of our present depression. His assertion that records of retail stores show that the consumer became oversold by the middle of the year and from that time on was too heavily obligated to continue purchasing is a very persuasive statement, if true. But is it true? Government statistics show that the department stores of this country sold 17 per cent more goods in the latter half of 1937 than in the first half, and the mail order houses sold 20 per cent more. All of the statistics available on retail store sales show considerably larger sales in the latter half of 1937 than in the first half.

It must be recognized, however, that, in almost all lines, retail selling is more or less seasonal. For some purposes, to get a fair picture of the variations in volume of retail selling we need an index adjusted for seasonal variation. The only such index available is that for department store sales.

In the diagram the solid curve shows the variation in the adjusted index of department store sales by months from the beginning of 1936 to June 1938, while the dotted curve is the unadjusted index of industrial payrolls. The sales index increased irregularly throughout 1936, but remained almost constant from January to October, inclusive, of 1937, after which there was a nearly continuous decrease to May, 1938. Payrolls increased almost continuously during the period until April, 1937, decreased irregularly but not very greatly until October, and decreased drastically in November and December, 1937, and January, 1938, with a subsequent less violent decrease.

It is perfectly evident that sales did not decrease in the latter half of 1937 because of any oversold condition in the first half. They did decrease in the last two months of the year and also in 1938 because of drastic decreases in payrolls, i.e., in the income of customers. Thus whatever decrease there was in retail sales during the first half, was undoubtedly due to the decreased income of the purchasers, consequent to a great number of lay-offs and wage and salary reductions.

The latter part of Mr. Fertig's article is taken up with a quasi prediction of future events in the automotive industry. I say quasi, because he uses a good many ifs, but it substantially boils down to the following:

The automobile factories will keep up intensive sales pressure.

This will necessitate longer installment terms and lower rates.

These rates will not afford a profit to the smaller finance companies, so they will have to go out of business and the large companies will have to take over all the automobile financing.

The large companies will be willing to finance only the good risks, which will cut down the available market so much that:

The manufacturers will have to take over the financing themselves.

Finally the manufacturers will be forced to stop putting emphasis on yearly models, and, on the contrary, to encourage the customers to use their cars as long as they can, and perhaps ultimately "to come out in the open with a rental proposition."

Obviously, one of the basic foundation stones of the aforesaid prophecies is the proposition stated near the beginning that the American public cannot afford to spend 20 per cent of its income for transportation. Now that it develops that the amount currently being spent is only 10 per cent, perhaps the prophecies should be discounted proportionately.

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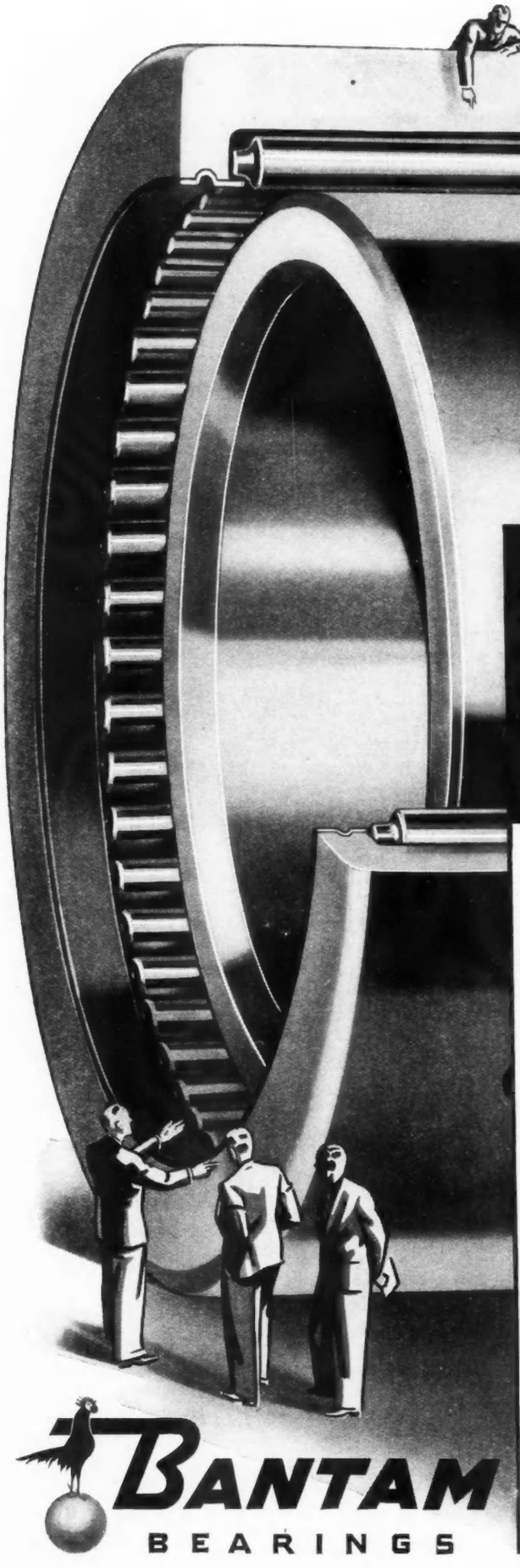

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2. **Simplified design—No fragile parts—Easy to assemble.**
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The trustworthiness of an author's conclusions and opinions can be measured in part at least by the accuracy of his information. If he is mistaken in his facts the reader is justified in doubting the validity of his opinions. It seems to me demonstrable that Mr. Fertig is wrong in the following assertions and implications:

That the American public is spending 20 per cent of its income for transportation.

That formerly the credit sources for installment financing were confined to a few large finance companies.

That recently there has been a great increase in the number of finance companies.

That an increase in the number of credit sources forces an increase in the volume of installment selling.

That in recent years there has been a great increase in the variety and volume of goods sold on the installment plan.

That there was a drastic decrease in retail sales in the latter half of 1937.

I therefore venture to express the opinion that neither his conclusions about the effect of installment selling on the business cycle, nor his predictions about the future of the automobile business, or the financing business, are worthy of being taken seriously.

Determining the Limitation of Spark Advance

(Continued from page 445)

portion of the acceleration should be made at part throttle, to avoid producing abnormal combustion-chamber temperatures due to excessive detonation. Determination of the knock-die-out point is most difficult with a "sensitive" type of fuel. In cases of appreciable wind, all tests should be made in the same direction, as otherwise both the temperatures and the rate of acceleration may change enough to affect the test results. The authors made all of their tests on level roads, but they express the opinion that tests on a uniform grade would be equally satisfactory, though the reduced rate of acceleration would be expected to produce some shift in the spark advance as a result of the greater temperature build-up.

The chart reproduced herewith shows curves of borderline-spark advance vs. speed for a small six-cylinder car having 25,000 total miles and 500 miles since carbon cleaning, for three commercial fuels and one experimental fuel, with the standard distributor-advance curve superimposed. From the data obtained the authors drew the conclusion that the technique described warrants a more extensive trial. In the preliminary tests which they had given it, it proved quite rapid, and the results seemed reasonably reproducible. It seemed to lend itself well to an attack on the "severity" problem.

GRAHAM

(Continued from page 435)

the radio speaker is in the center of the instrument panel.

Among the optional extras offered is a column-mounted shift lever which has the same gear positions as the conventional shift lever, but in a vertical instead of in a horizontal plane.

Specifications show that the 90-hp. L-head engine has a cast-iron cylinder head of new design. Engines with supercharger are fitted with aluminum cylinder heads. Other equipment items going with the supercharger include dual exhaust manifolds, special exhaust valves, a 1½-in. instead of a 1¼-in. carburetor, a dual muffler system, a larger radiator core, a kick-shackle in the steering system, a larger battery, and larger tires.

The Special is available in any one of five different colors, viz., black, clipper gray, Meadowbrook green, Monte Carlo bronze, and Riviera blue. Custom models may be had in Egyptian ivory, cloud gray, mapleleaf green, and regal maroon. Fenders and sheet metal are lacquered to match body colors.

Acetylene Forbidden In Italy

The Italian Government has issued a decree forbidding the use of acetylene in combustion engines, for the reason that the coal required for the production of acetylene costs about two-and-one-half times as much as gasoline having the same heat value as the acetylene. Moreover, acetylene is highly detonating and calls for special precautions when used in engines.

Artificial Fibers in Tires

It is reported from Italy that the Pirelli Company in future will use artificial fibers exclusively in the manufacture of its automobile tires.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACTS OF CONGRESS OF AUGUST 24, 1912, AND MARCH 3, 1933

of AUTOMOTIVE INDUSTRIES, published weekly at Philadelphia, Pa., for October 1, 1938.

State of Pennsylvania } ss.
County of Philadelphia }

Before me, a notary public in and for the State and county aforesaid, personally appeared Joseph S. Hildreth, who, having been duly sworn according to law, deposes and says that he is the Business Manager of the Automotive Industries and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are: Publisher, Chilton Company, Chestnut & 56th Sts., Phila., Pa.; Editor, Julian Chase, Chestnut & 56th Sts., Phila., Pa.; Managing Editor, Herbert Hosking, Chestnut & 56th Sts., Phila., Pa.; Business Manager, Joseph S. Hildreth, Chestnut & 56th Sts., Phila., Pa.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.) Chilton Company, Chestnut & 56th Sts., Phila., Pa.

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5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the twelve months preceding the date shown above is . (This information is required from daily publications only.)

JOS. S. HILDRETH, *V.-P., Business Manager.*

Sworn to and subscribed before me this 15th day of September, 1938.

JOSEPH W. FRITZ,
(My commission expires Feb. 19, 1939.)
[SEAL.]